STATE OF NEW YORK

# PUBLIC SERVICE COMMISSION

FOR THE FIRST DISTRICT

# Whitehall Street–East River–Montague Street Rapid Transit Railroad

# Route No. 33

## SECTION No. 2–Whitehall Street, East River, Montague Street to Clinton Street

1914

CONTRACT DRAWINGS CONTAINED HEREIN

| | |
|---|---|
| ROUTE No. 33, | A-2 to 4 |
| SECTION No. 2: | B-288, 289, 298, 305 to 307 |
| | C-1 to 38, 1001 |

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293

388
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## LIST OF CONTRACT DRAWINGS IN THIS BOOK
## ROUTE No. 33, SECTION No. 2

| | |
|---|---|
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| A–3 | Profile of grades and track alignment. |
| A–4 | Profile of grades and track alignment. |
| C–1 | Available areas for contractor's use. |
| C–2 | Available areas for contractor's use. |
| C–3 | Typical cross-sections of tubes. |
| C–4 | Detail of cast-iron ring in earth. |
| C–5 | Detail of cast-iron rings in rock. |
| C–6 | Cross-section and detail of 23-foot tube. |
| C–7 | Turnout at South Ferry, plan. |
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| C–10 | Turnout at South Ferry, Section C-C. |
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| C–24 | Brooklyn shaft, part Section E-E. |
| C–25 | Brooklyn shaft, part Section E-E. |
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| C–28 | Brooklyn shaft, Sections M-M and N-N. |
| C–29 | Brooklyn shaft, Sections K-K and O-O. |
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| C–37 | Brooklyn shaft, skin plates on outside face of north and south walls. |
| C–38 | Duct line in street. |
| C–1001 | Typical details of gratings, ladders and emergency exit covers. |

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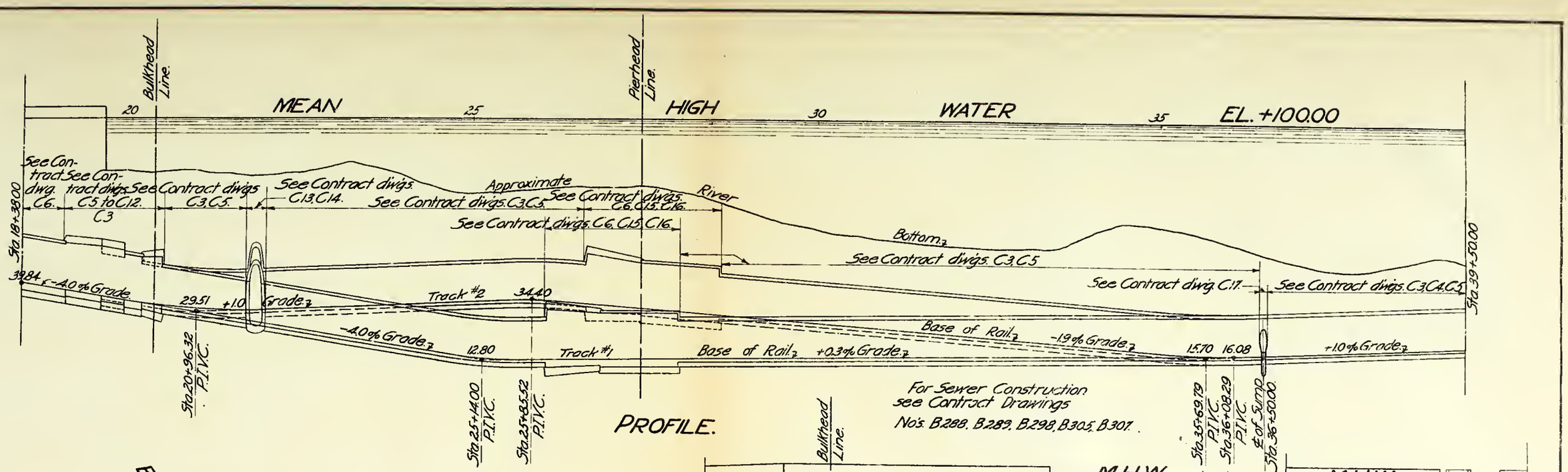
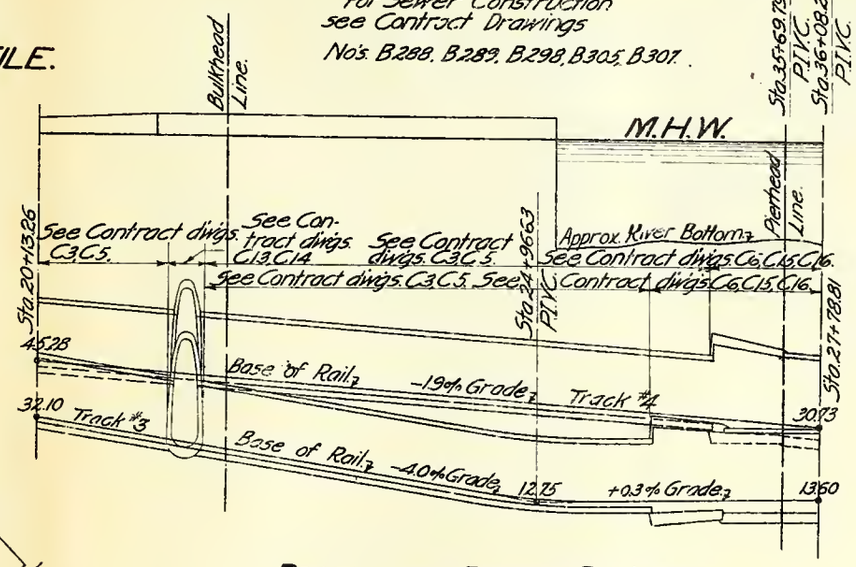
| B–289 | Standard receiving basins and details. |
| B–298 | Standard castings of sewers. |
| B–305 | Plan of new sewers, Broad and Whitehall Streets, at South Street. |
| B–306 | Plan of new sewers, Montague Street, Furman to Henry Street. |
| B–307 | Plan of new sewers, detail of overflow at South and Broad Streets. |

563876

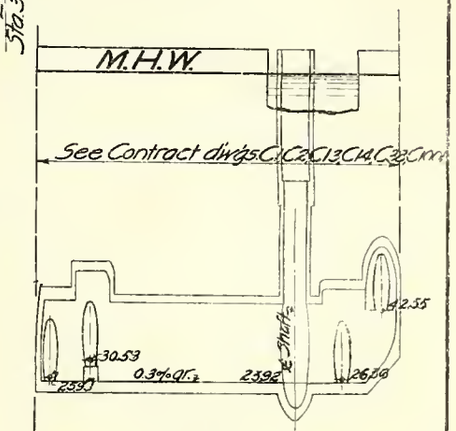



PROFILE.

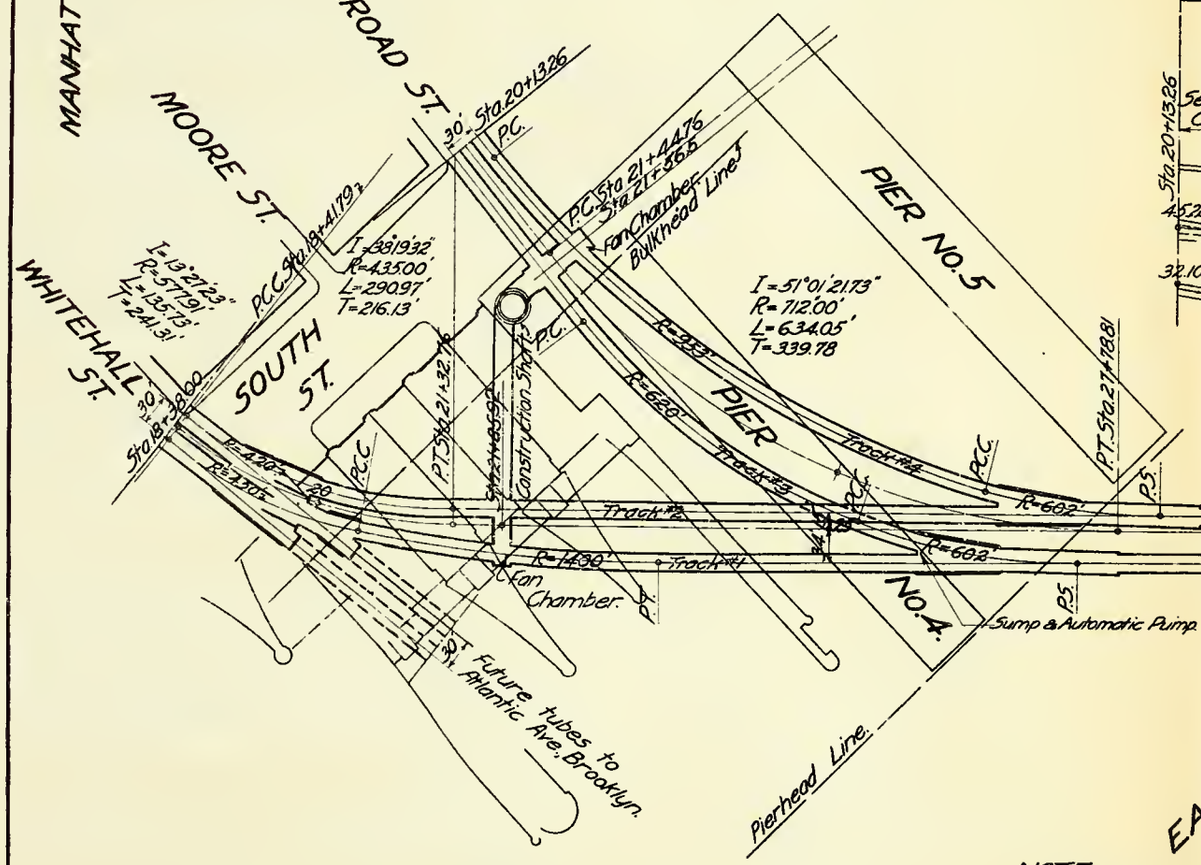
For Sewer Construction see Contract Drawings No's. B.288. B.283. B.298. B.305. B.307.




PROFILE OF BROAD ST. LINE.




PROFILE ON ℄ OF DRIFT.




PLAN.

EAST RIVER.

NOTE:
Splicing chambers 10'-0" long, spaced about 300' centre to centre, to be provided in duct benches.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. A-2

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALES: HORIZONTAL 0 40 80 FEET
VERTICAL 0 10 20 FEET

DRAWN BY C.A.McG
CHECKED BY E.Bie

64169

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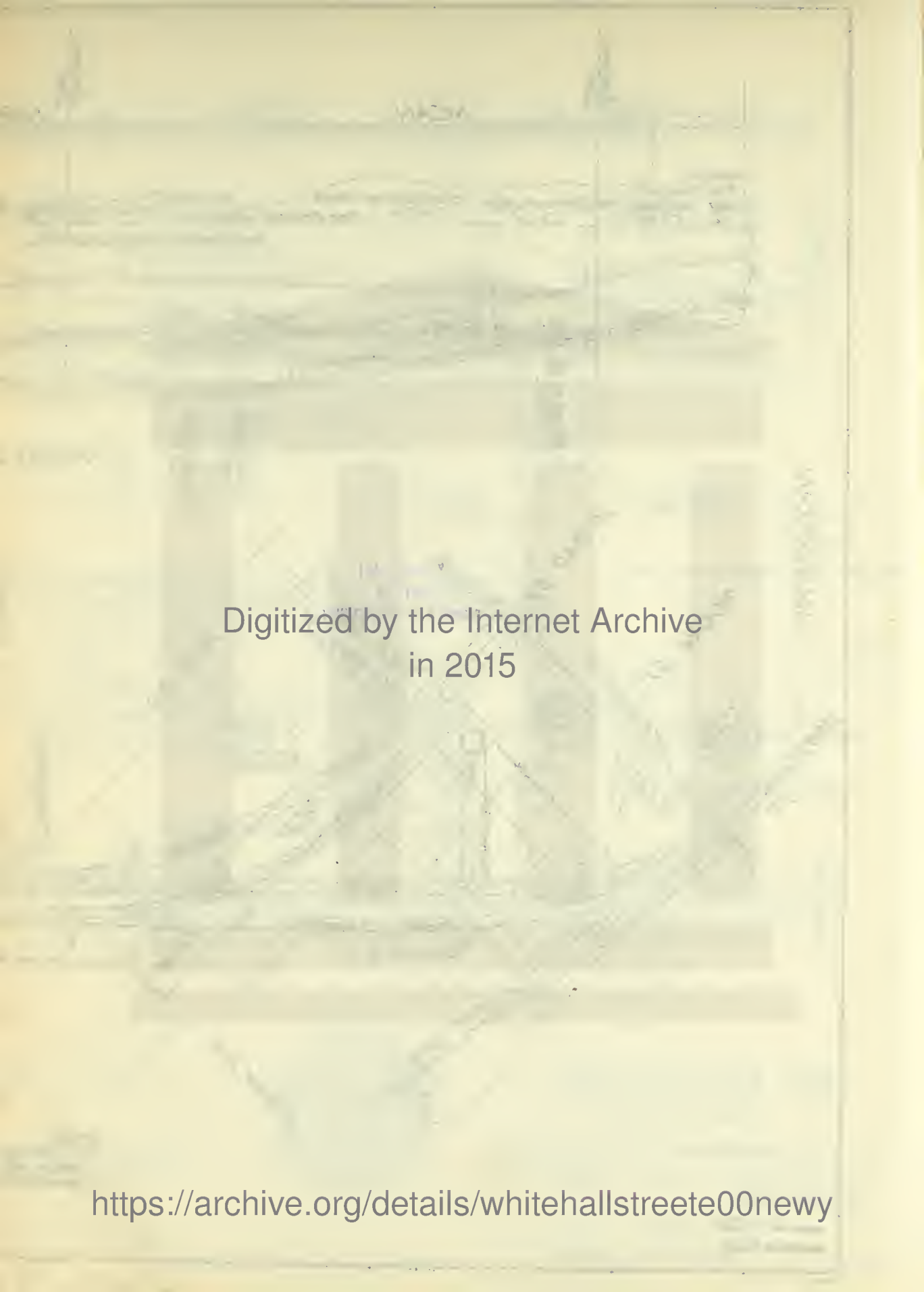
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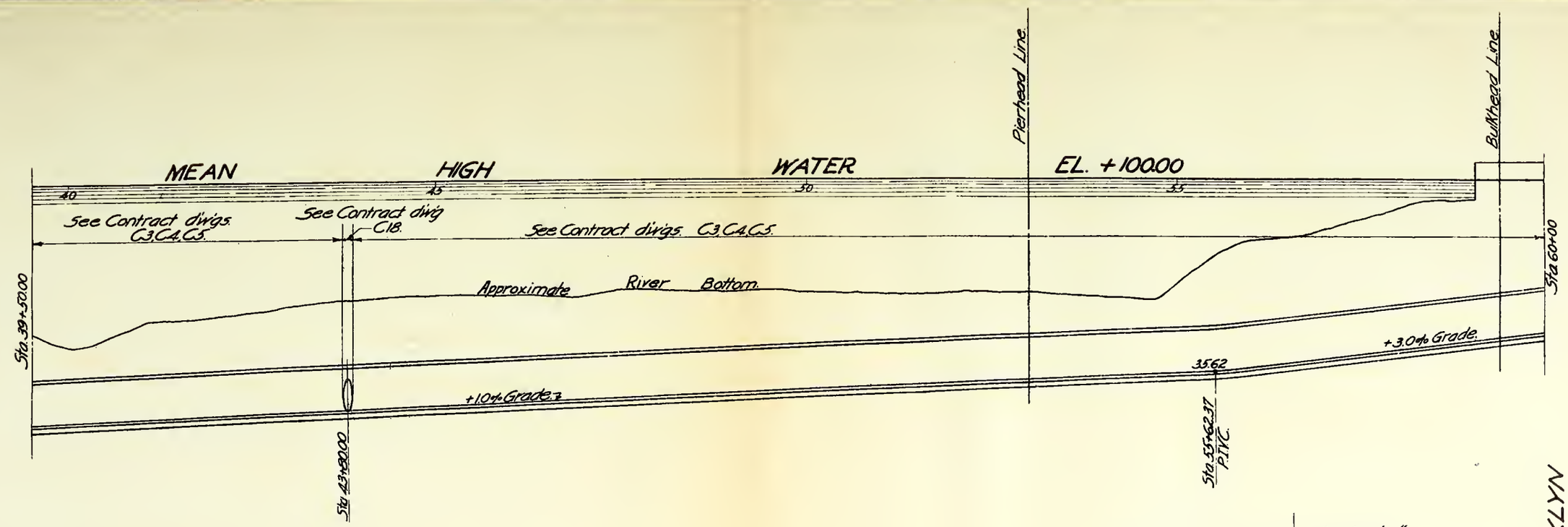
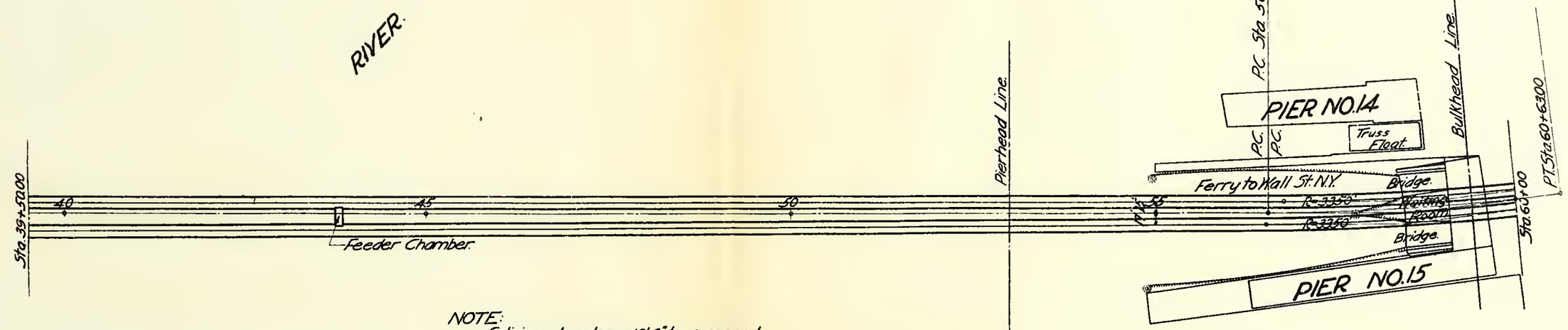



NOTE:
Splicing chambers 10:0" long, spaced about 300 centre to centre, to be provided in duct benches.

# ROUTE NO. 33

## SECTION NO. 2

## CONTRACT DRAWING NO. A-3

DATE MARCH 14, 1914

CHIEF ENGINEER

HORIZONTAL SCALES: 0 40 80 FEET

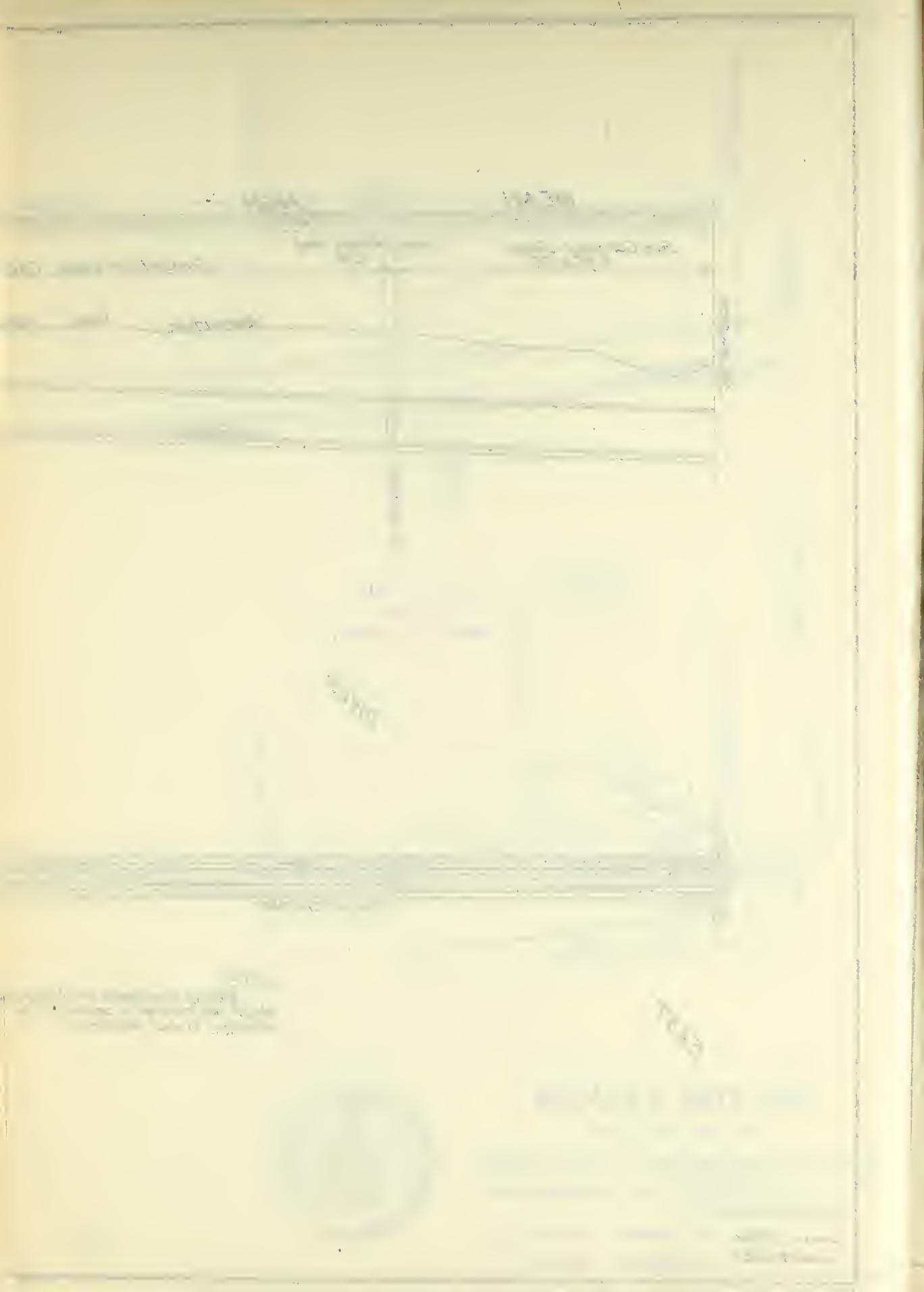
VERTICAL 0 10 20 FEET

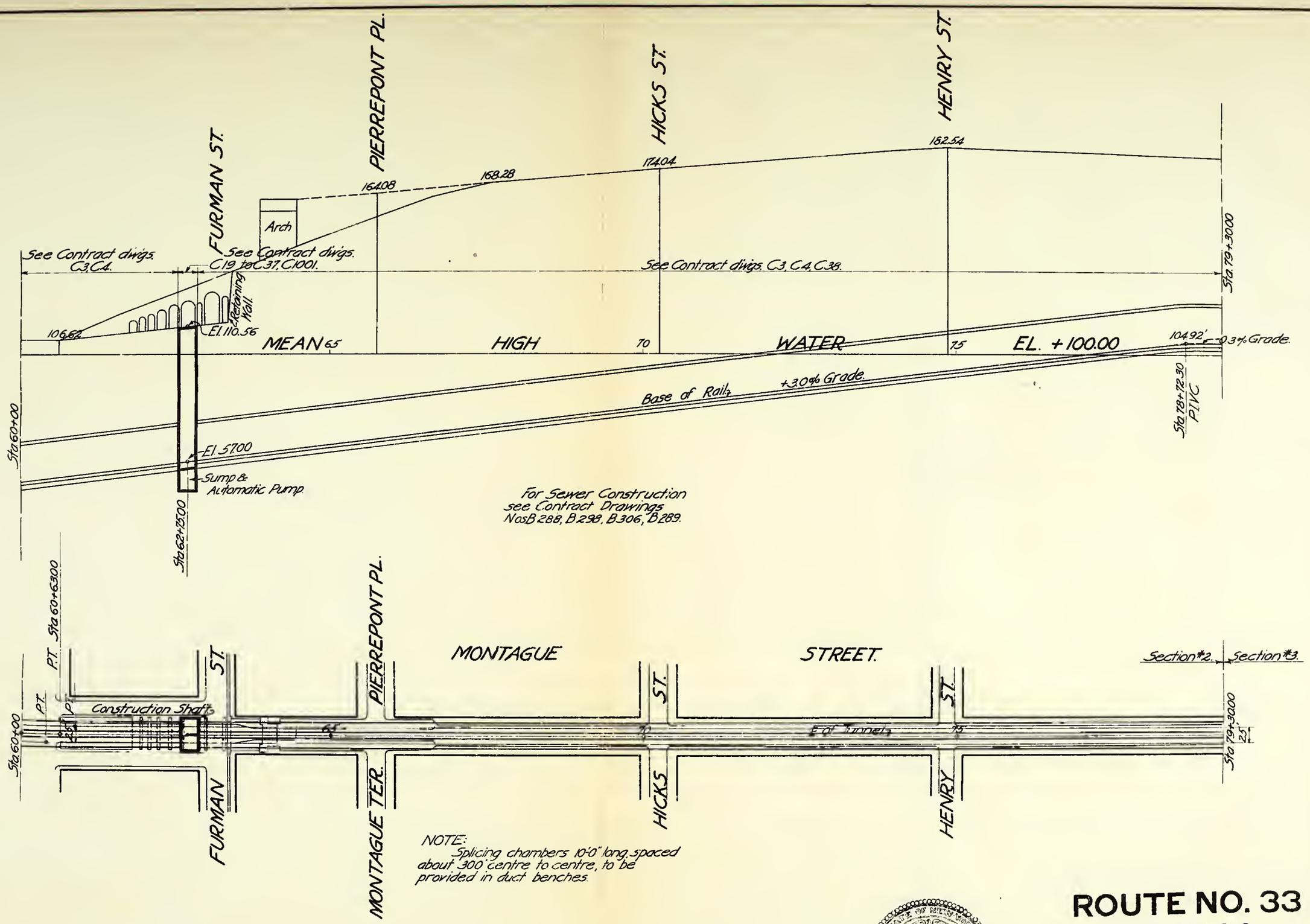
DRAWN BY C.A.McC.

CHECKED BY E.Bie

64469

M.B. BROWN PRINTING & BINDING CO. N.Y.






NOTE:
Splicing chambers 10'-0" long, spaced about 300' centre to centre, to be provided in duct benches.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. A-4

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALES: HORIZONTAL 0 40 80 FEET
VERTICAL 0 10 20 FEET

DRAWN BY C.A.McC.
CHECKED BY E. Bie

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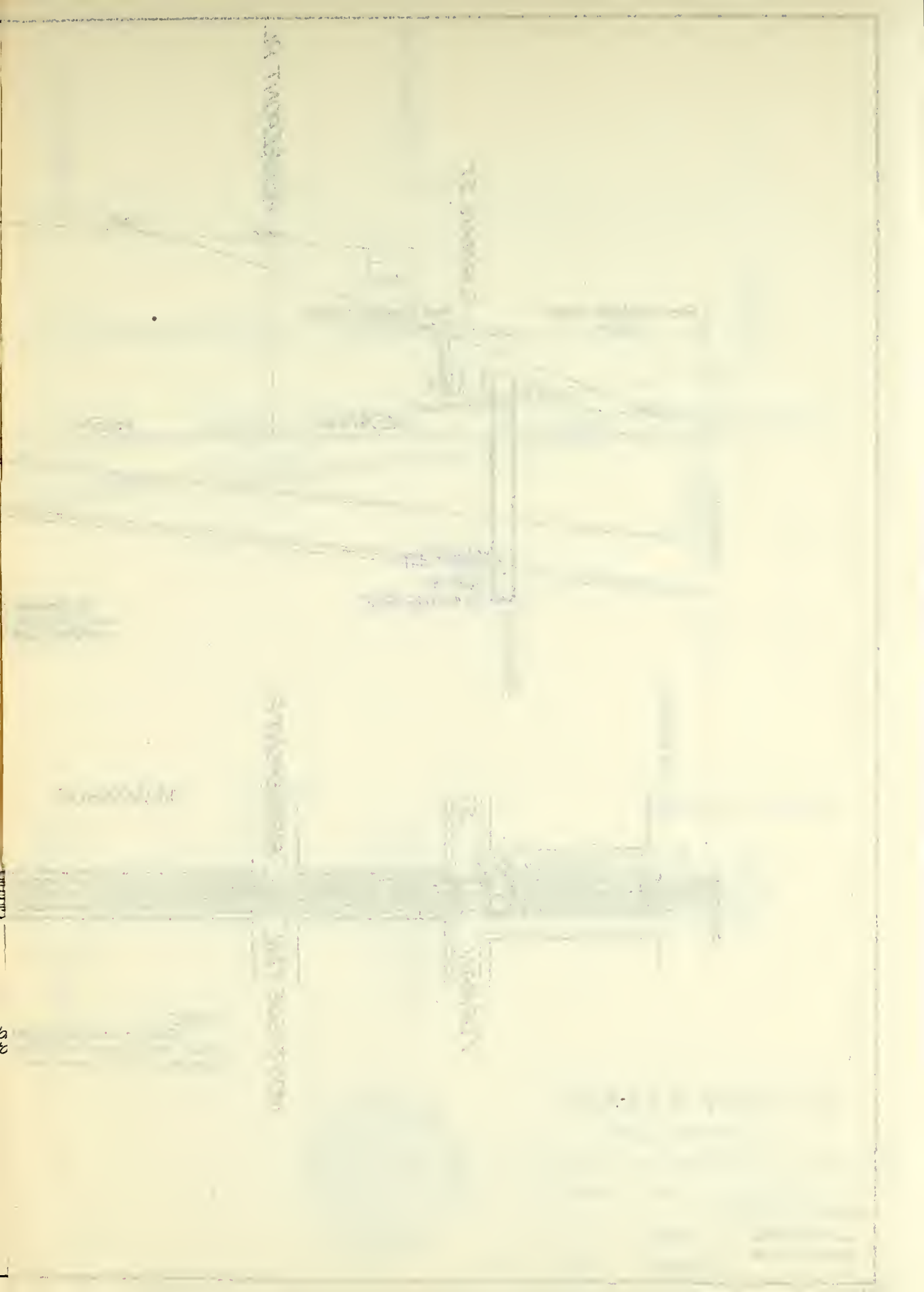
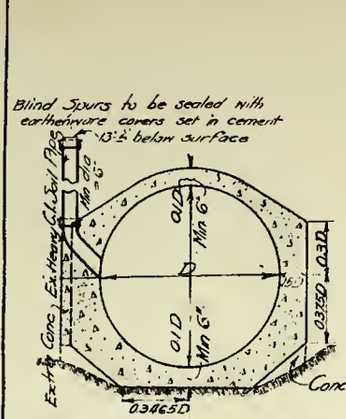
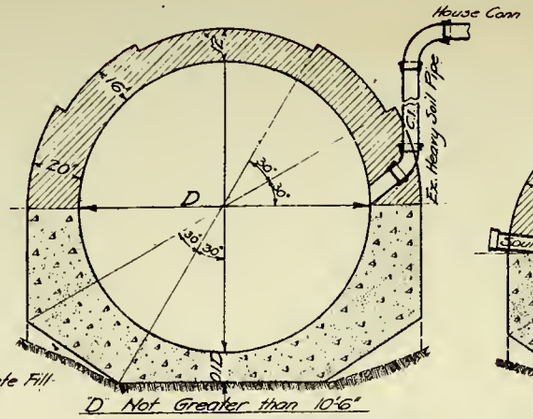


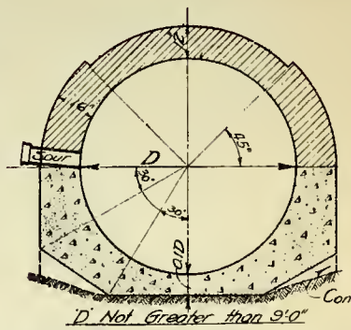
# STANDARD SECTIONS.



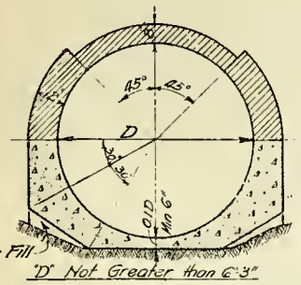

CIRC. CONC. SEWER



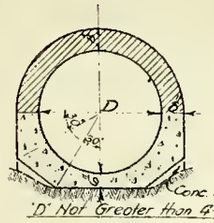

'D' Not Greater than 10'-6"




'D' Not Greater than 9'-0"

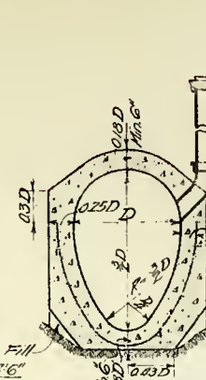


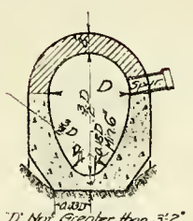

'D' Not Greater than 6'-3"



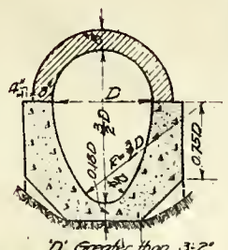

'D' Not Greater than 4'-6"

## -CIRCULAR BRICK AND CONCRETE SEWERS-
## TYPICAL SECTIONS IN FIRM GROUND



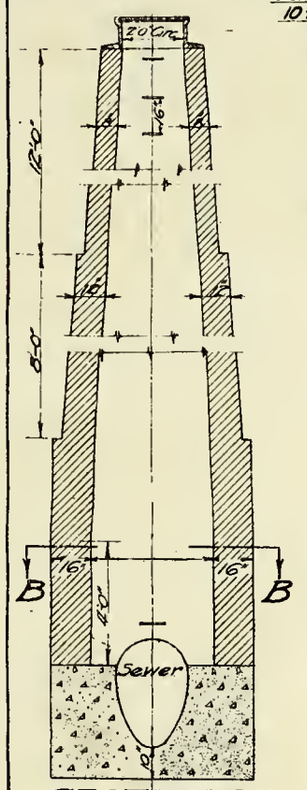




'D' Not Greater than 3'-2"

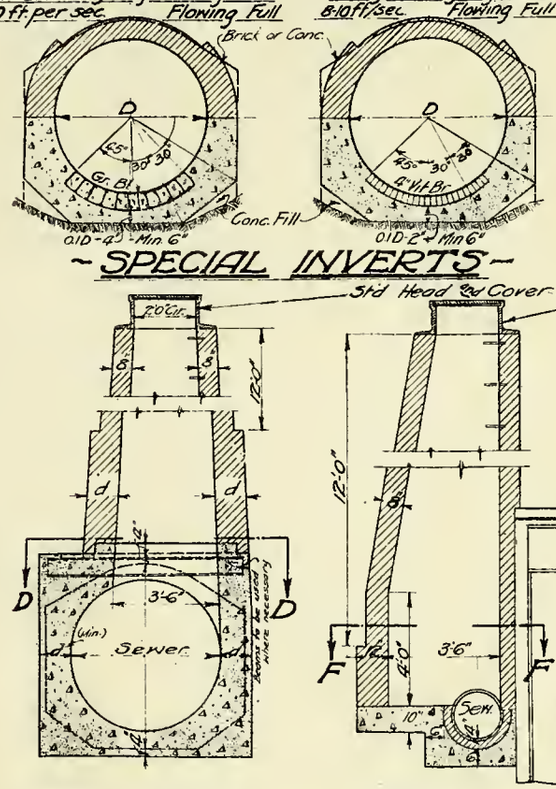



'D' Greater than 3'-2"

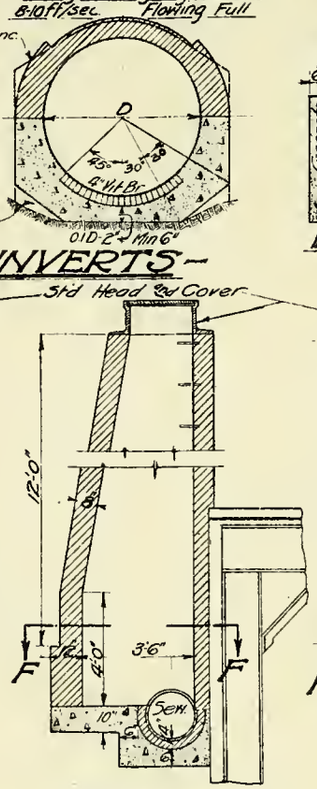
## -EGG-SHAPED SEWERS-



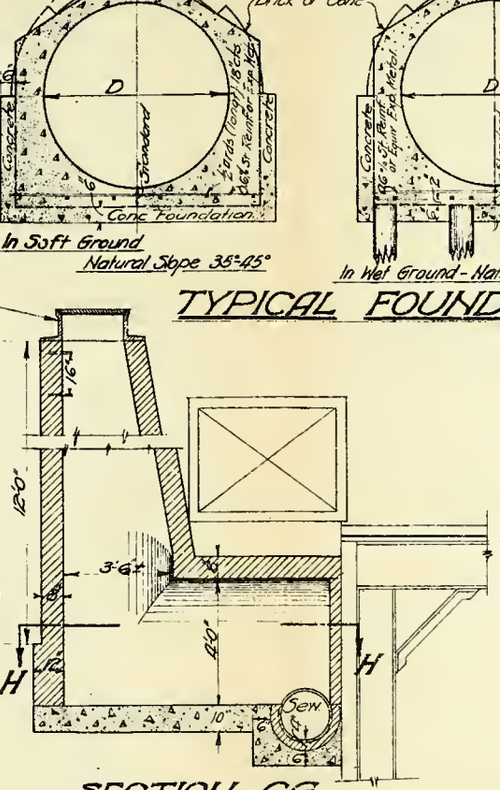

SECTION AA




-SECTION-CC-

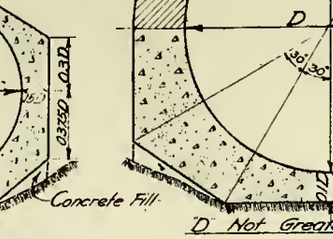



SECTION EE




SECTION GG

## TYPICAL FOUNDATIONS FOR ALL SEWERS







-SPECIAL INVERTS-
















OFF-LINE ON-LINE

PIPE SEWERS




SECTION DD
ELLIPTICAL M.H.



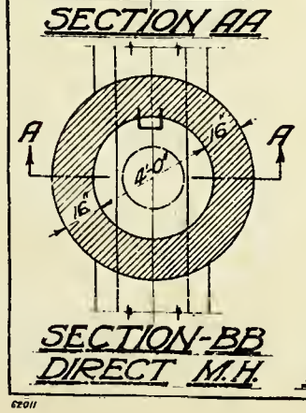

SECTION FF
HORSESHOE M.H.

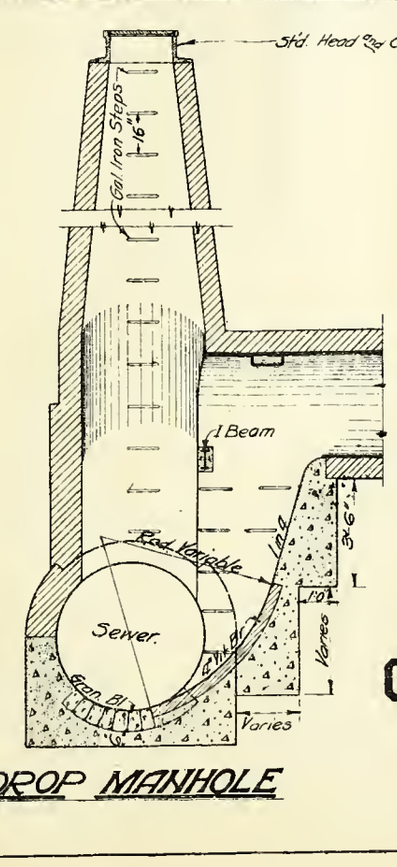



SECTION 'HH'
OFF-SET M.H.

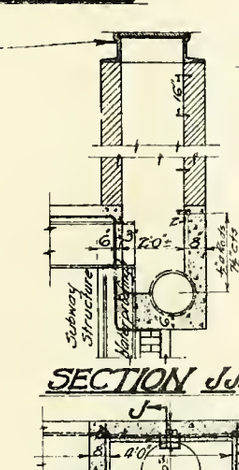



SECTION-BB
DIRECT M.H.

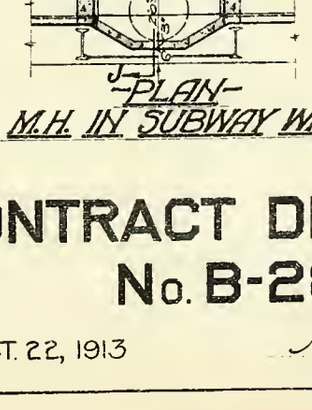



DROP MANHOLE

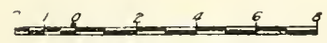



SECTION JJ.




-PLAN-
M.H. IN SUBWAY WALL

**Notes:-** Interior of Sewers to be finished to a true surface. Extrados of Brick Arch to be plastered with 1:2 Portland Cement Mortar ½" thick. Outside of Manholes to be plastered with 1:2 Portland Cement Mortar ½" thick




-Scale-

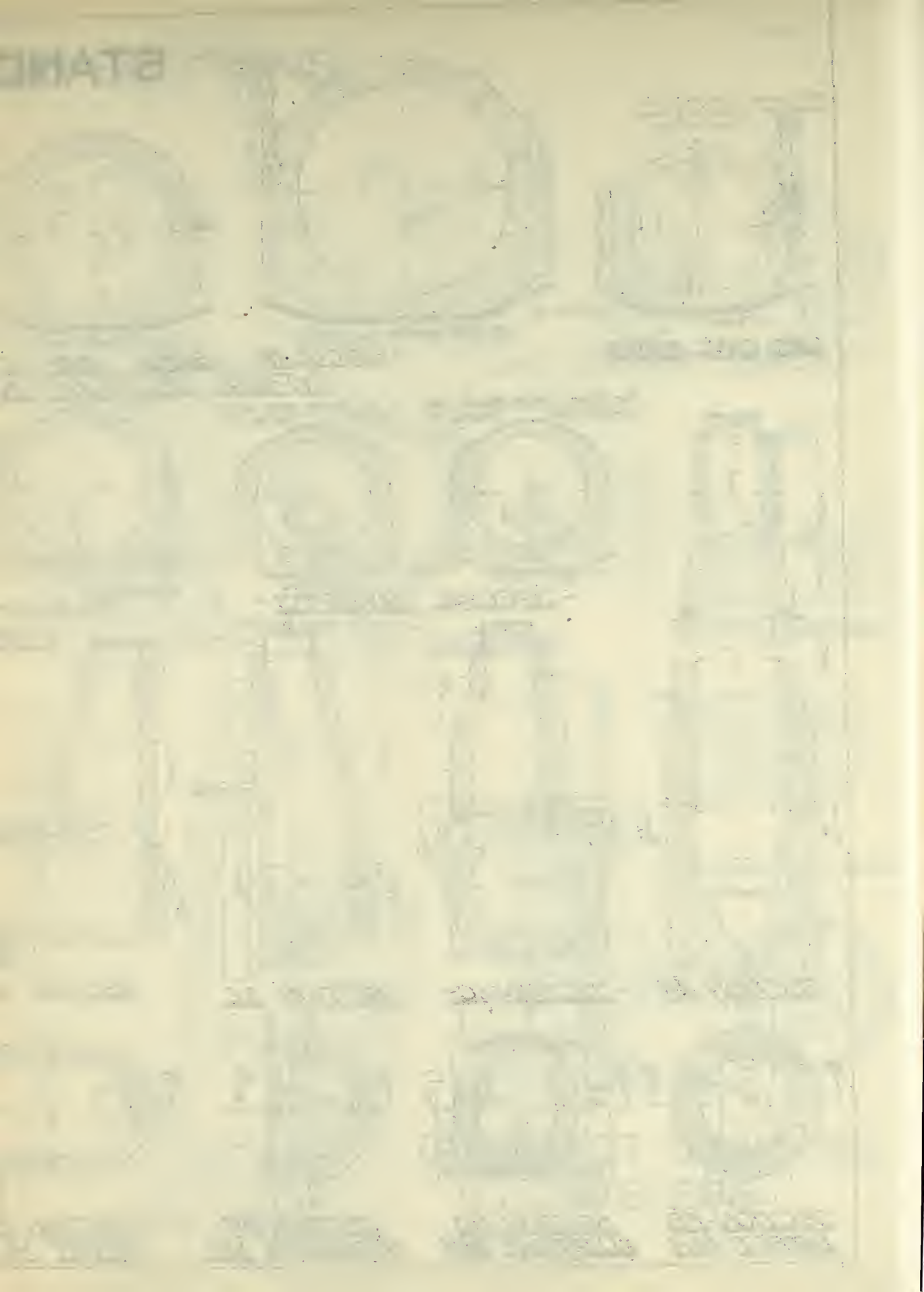
# CONTRACT DRAWING
# No. B-288

OCT. 22, 1913

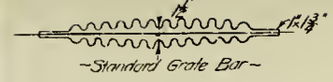
Alfred Craven
CHIEF ENGINEER

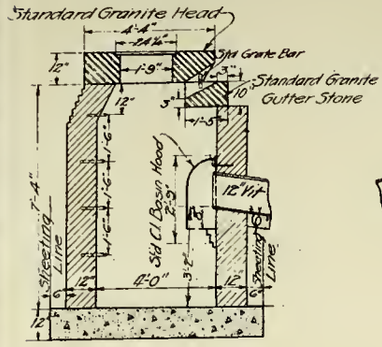
62011

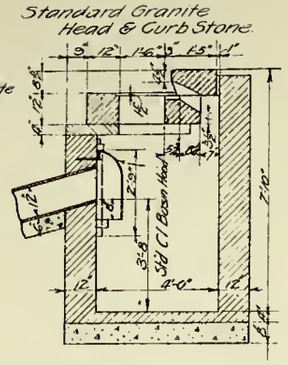
M.B BROWN PRINTING & BINDING CO. N.Y.

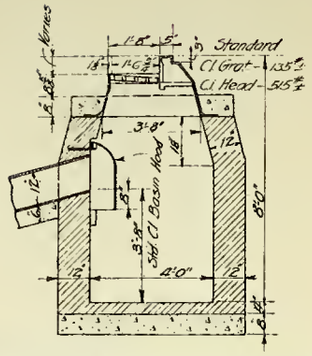


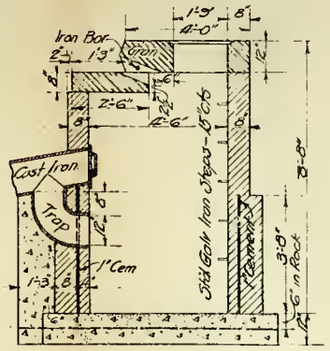
# STANDARD SECTIONS.

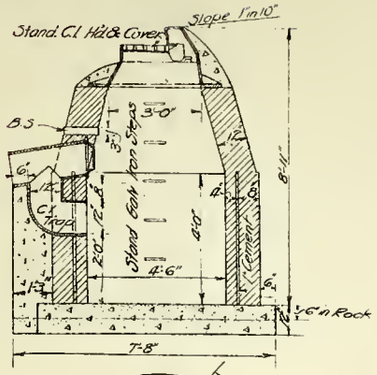


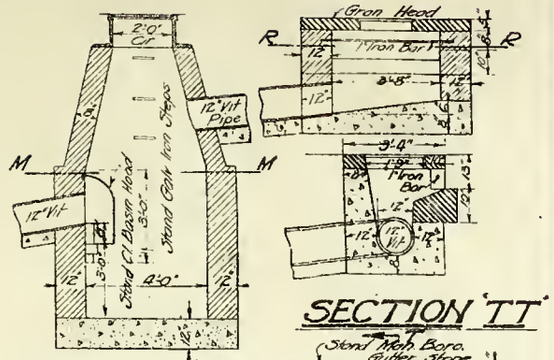



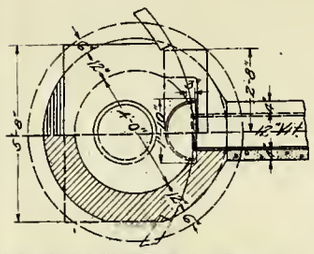



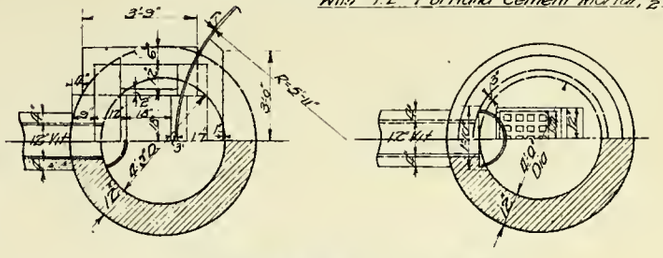




SECTION 'TT'

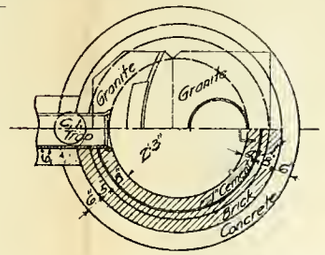
Note:- Inside & Outside of Basins to be plastered with 1:2 Portland Cement Mortar, ½" thick

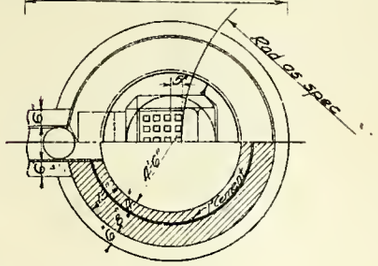


MANHATTAN BORO

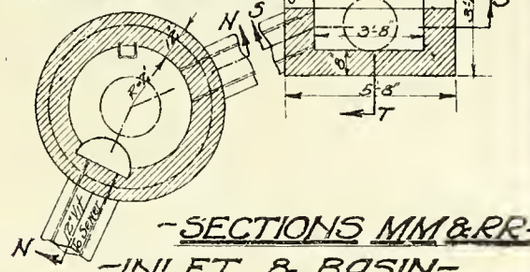


BROOKLYN BORO



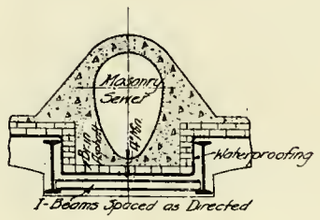




SECTIONS 'NN' & 'SS'

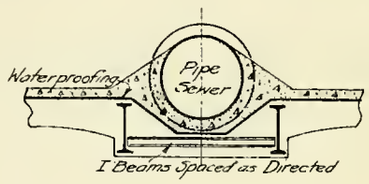



-SECTIONS MM & RR-
-INLET & BASIN-

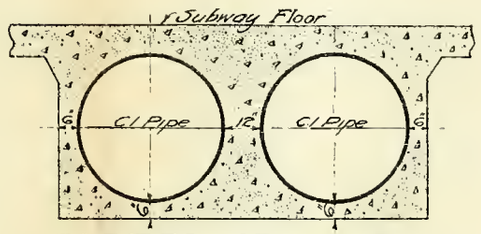
## -RECEIVING BASINS-



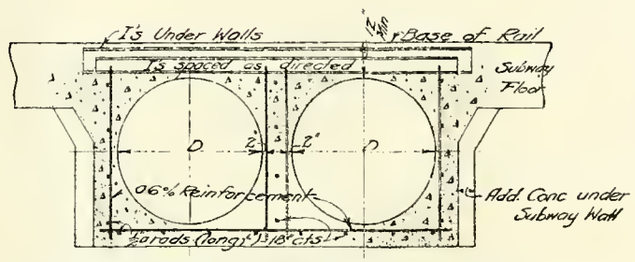

SEWER CROSSING OVER STRUCTURE



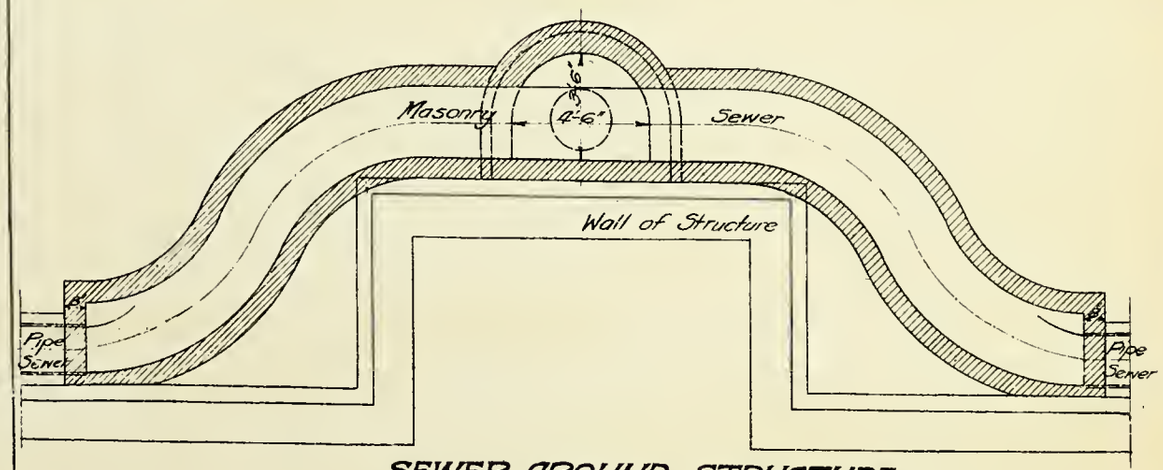

SEWER CROSSING OVER STRUCTURE



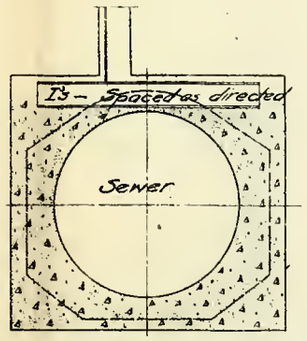

C.I. PIPES CROSSING UNDER STRUCTURE



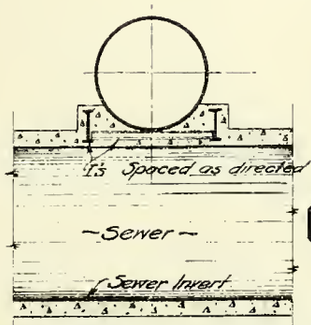

REINFORCED CONCRETE PIPES CROSSING UNDER SUBWAY




SEWER AROUND STRUCTURE




SEWER SUPPORTING STRUCTURE.




STRUCTURE CROSSING OVER SEWER

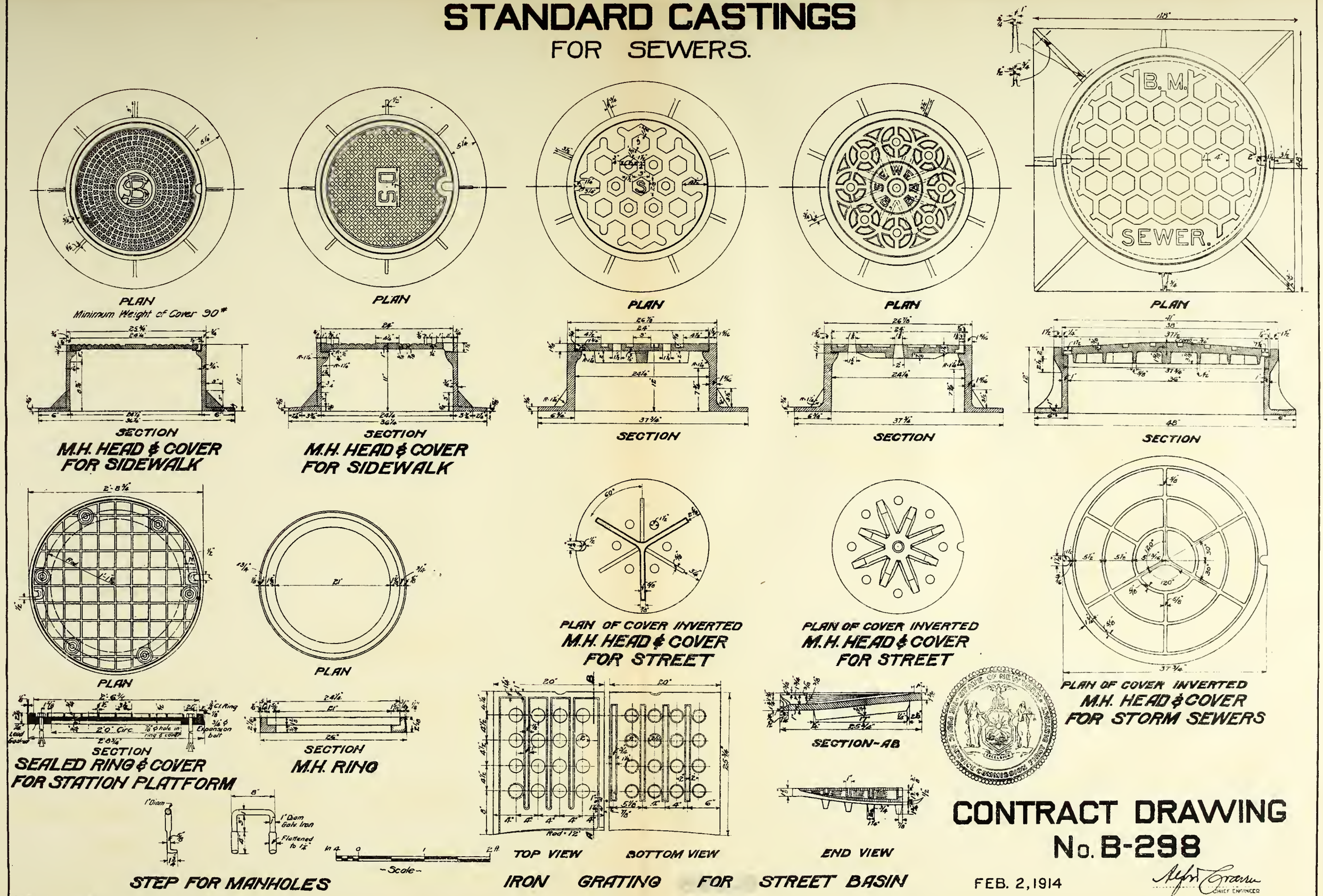
# CONTRACT DRAWING No. B-289

OCT. 22, 1913

Alfred Craven
CHIEF ENGINEER

M.B. BROWN PRINTING & BINDING CO. N.Y.

# STANDARD CASTINGS
## FOR SEWERS.




# CONTRACT DRAWING
# No. B-298

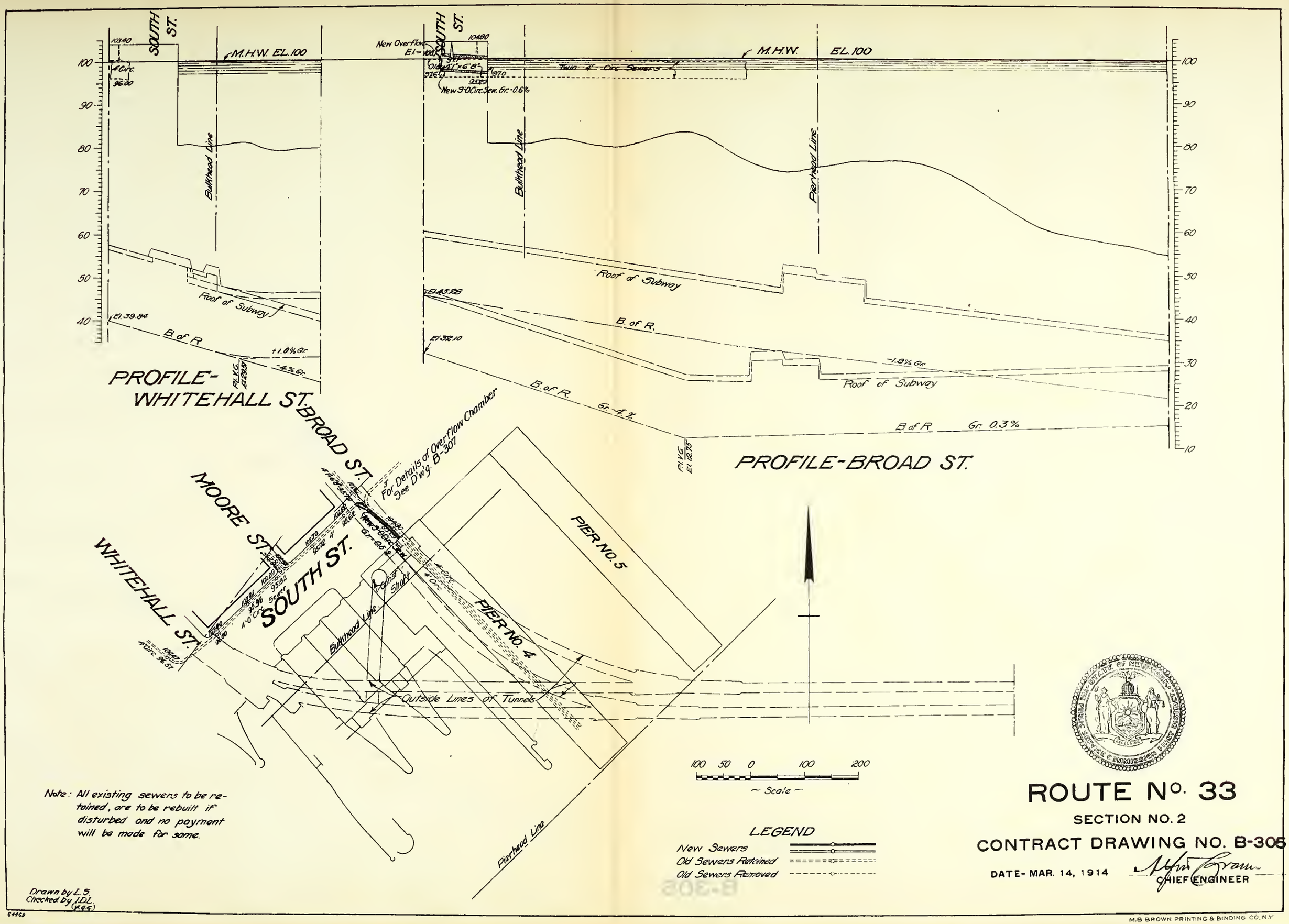
FEB. 2, 1914

Alfred Craven
CHIEF ENGINEER

DRAWN BY - K.D. Strange
CHECKED BY - W.G. Golden

61958

M.B. BROWN PRINTING & BINDING CO. N.Y.




Note: All existing sewers to be retained, are to be rebuilt if disturbed and no payment will be made for same.

Drawn by L.S.
Checked by I.D.L. (H.G.G.)

# ROUTE No. 33

SECTION NO. 2

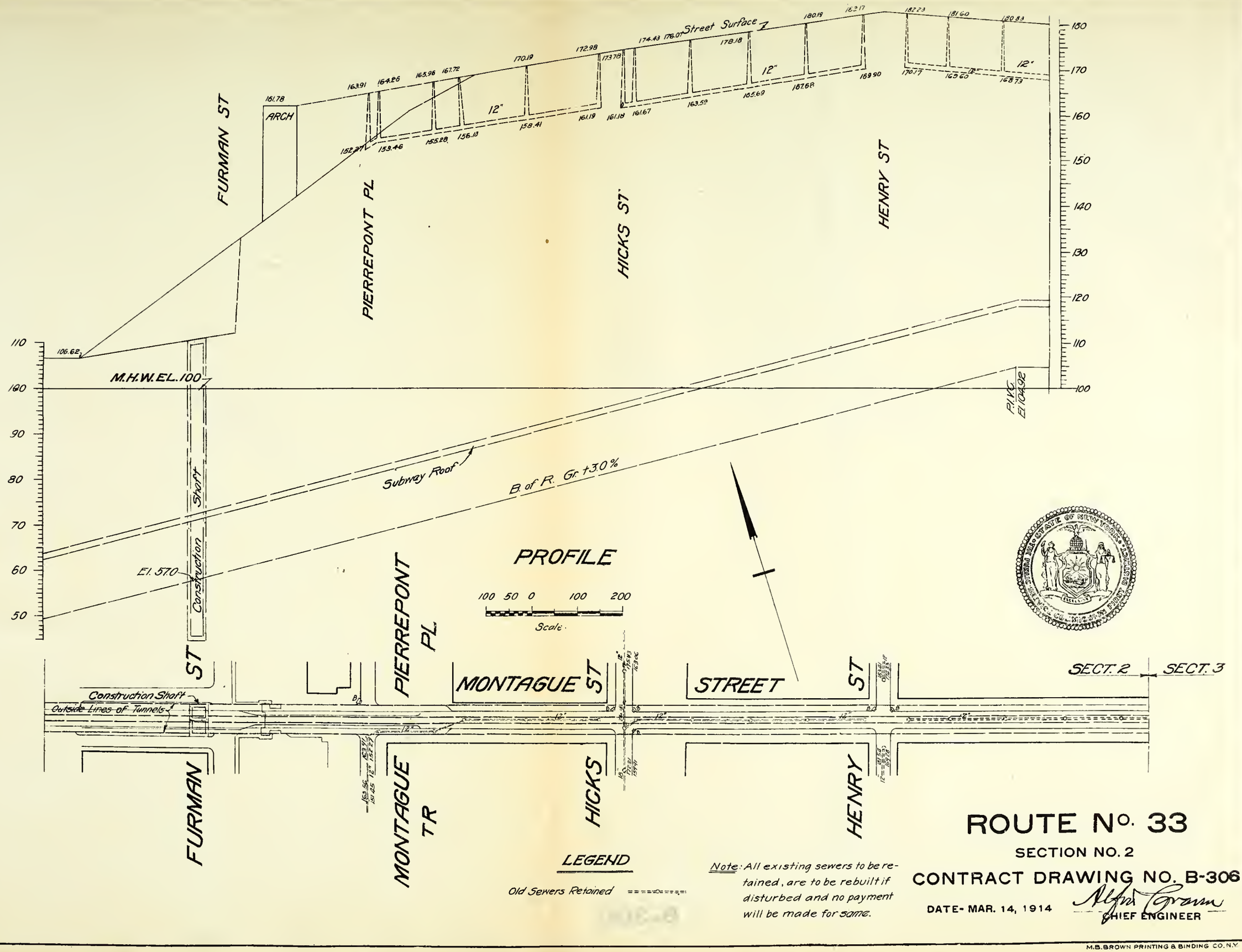
CONTRACT DRAWING NO. B-305

DATE- MAR. 14, 1914

CHIEF ENGINEER

64469

M.B. BROWN PRINTING & BINDING CO. N.Y.




LEGEND

Old Sewers Retained ==========

Note: All existing sewers to be retained, are to be rebuilt if disturbed and no payment will be made for same.

# ROUTE No. 33

SECTION NO. 2

CONTRACT DRAWING NO. B-306

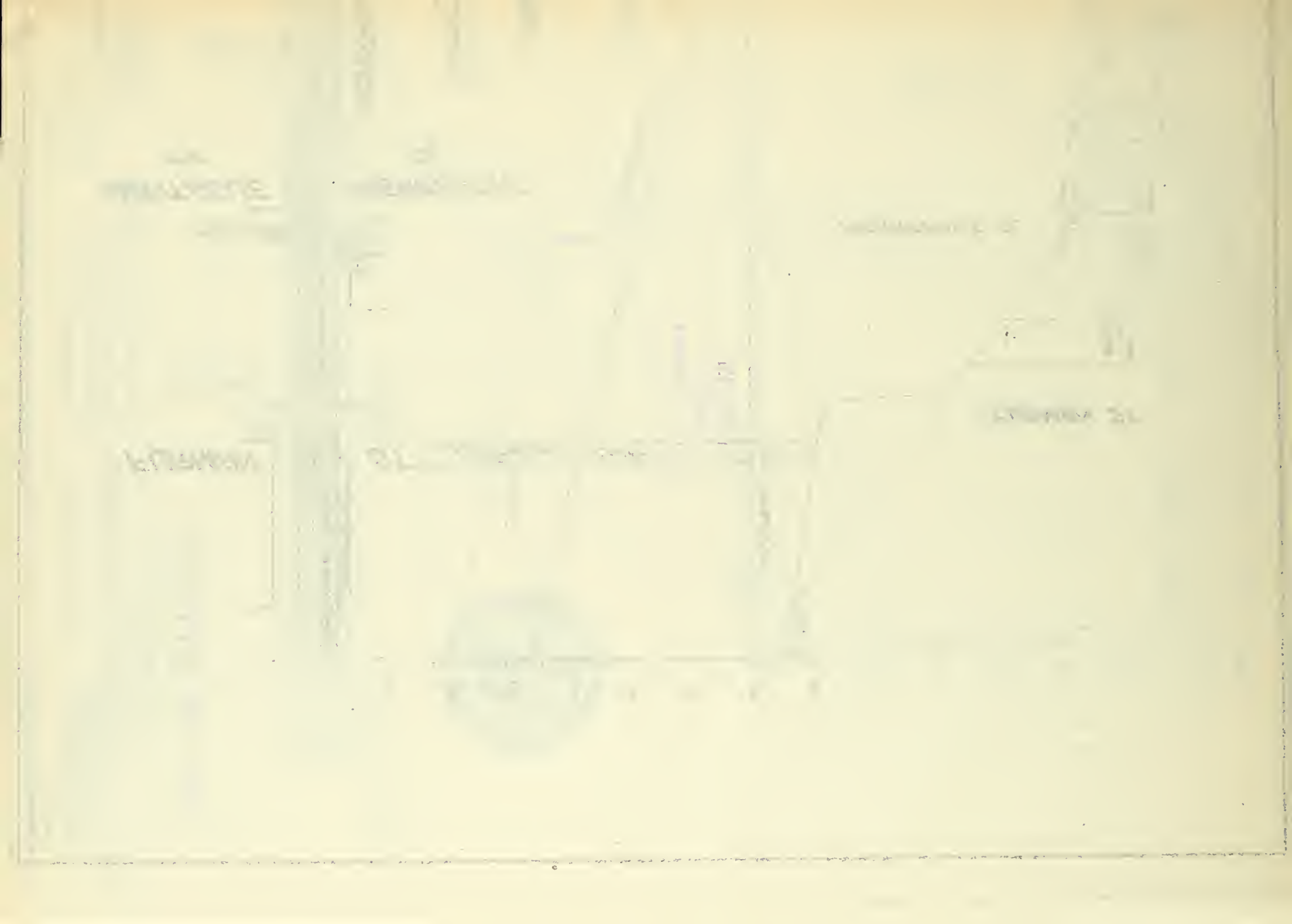
DATE- MAR. 14, 1914

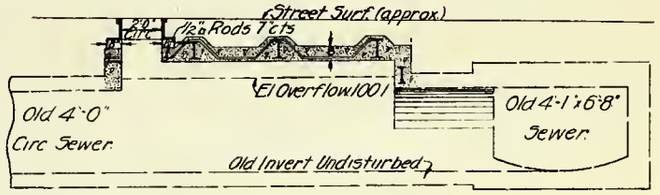
CHIEF ENGINEER

Drawn by AS
Checked by I.D.L

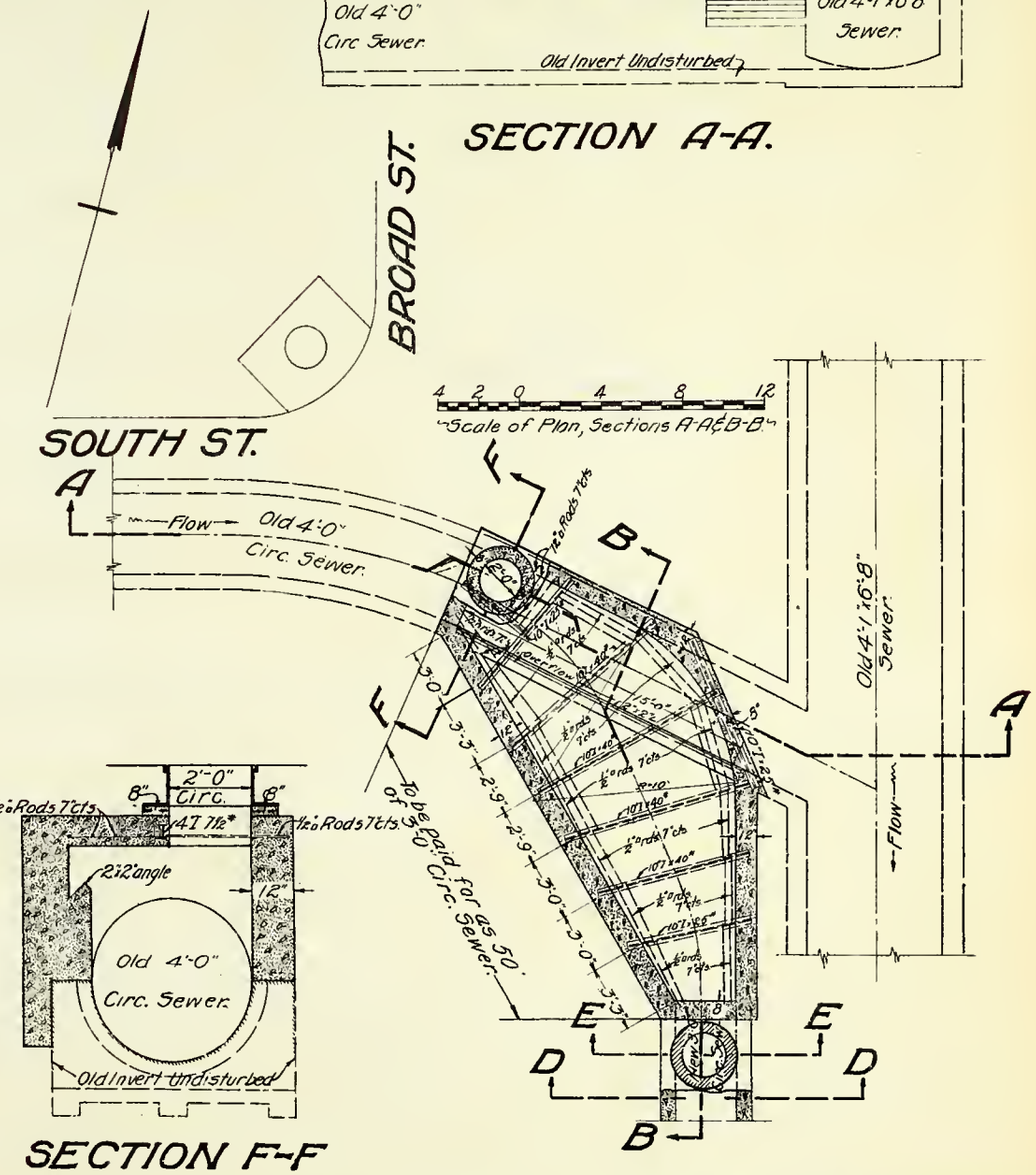
64489

M.B. BROWN PRINTING & BINDING CO. N.Y.



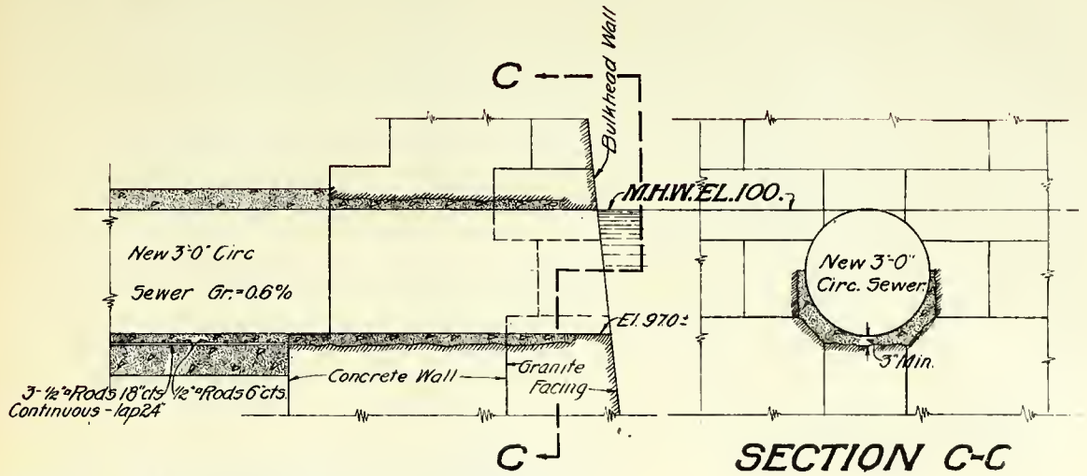



SECTION A-A.



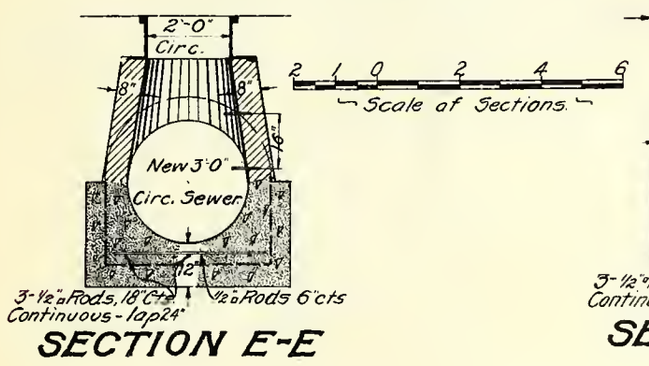

SECTION F-F

PLAN OF OVERFLOW CHAMBER.

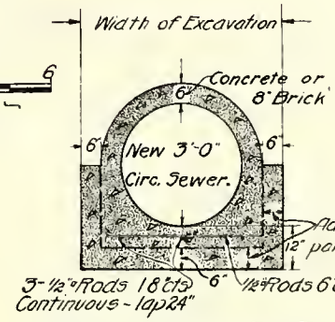



SECTION C-C

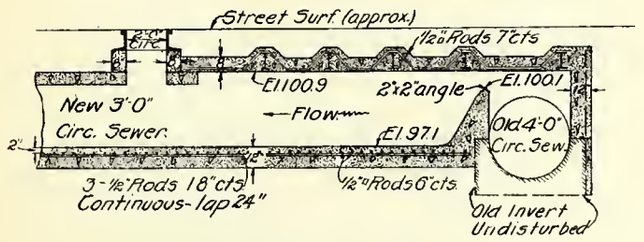
LONG. SECTION OF OUTLET AT BULKHEAD WALL.




SECTION E-E




SECTION D-D




SECTION B-B

Notes:

All existing sewers to be retained are to be rebuilt if disturbed and no payment will be made for same.

Price per lin ft of sewer will include all material and labor applicable thereto, excepting steel rods and beams, which will be paid for at the stipulated rates for these items.

For Plan and Profile see Sheet B305

# ROUTE No. 33

SECTION NO. 2

CONTRACT DRAWING NO. B-307

DATE- MAR. 14, 1914

Alfred Brown
CHIEF ENGINEER

Drawn by W.W.P.
Checked by I.D.L.
(1914)

L.A.429

M.B. BROWN PRINTING & BINDING CO. N.Y.

MANHATTAN

WATER STREET.

SLIP.

"Second Ave" El.

SLIP.

FRONT STREET.

COENTIES SLIP.

JEANETTE PARK.

COENTIES SLIP.

SOUTH STREET.

PIER 5.

Bulkhead Line 7

PIER 6

PIER 4.

EAST RIVER.

Pierhead Line 7

PIER 4.

Bulkhead Line 7

RAILROAD YARD.

FURMAN STREET.

FULTON STREET.

BROOKLYN

EAST RIVER.

(M) - designates sites for use of Contractor for Whitehall Street - East River - Montague Street tunnel, Route No. 33, Section No. 2, for steam-generating, steam-using, air-compressing and other plant and for storage of materials.

(C) - designates sites for use of Contractor for Old Slip - East River - Clark Street tunnel, Route No. 48, Section No. 3, for steam-generating, steam-using, air-compressing and other plant and for storage of materials.

STATE OF NEW YORK PUBLIC SERVICE COMMISSION FIRST DISTRICT

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-1

DATE MARCH 14, 1914

Alfred Brunn
CHIEF ENGINEER

SCALE 0 20 40 FEET

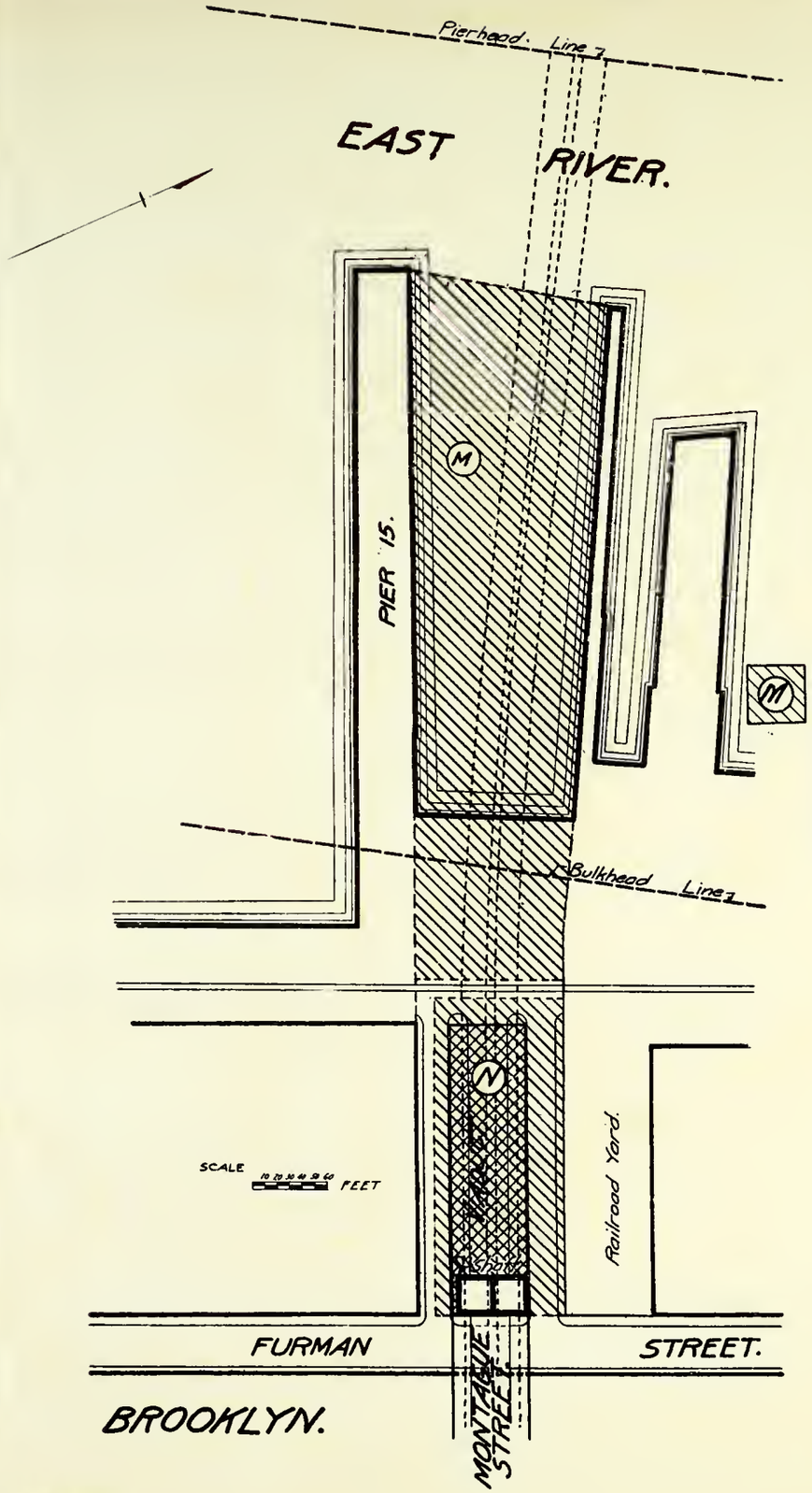
DRAWN BY Goldschlag & Oberstein.

CHECKED BY Holland

## SITES FOR AIR COMPRESSING PLANTS, ETC.

64469

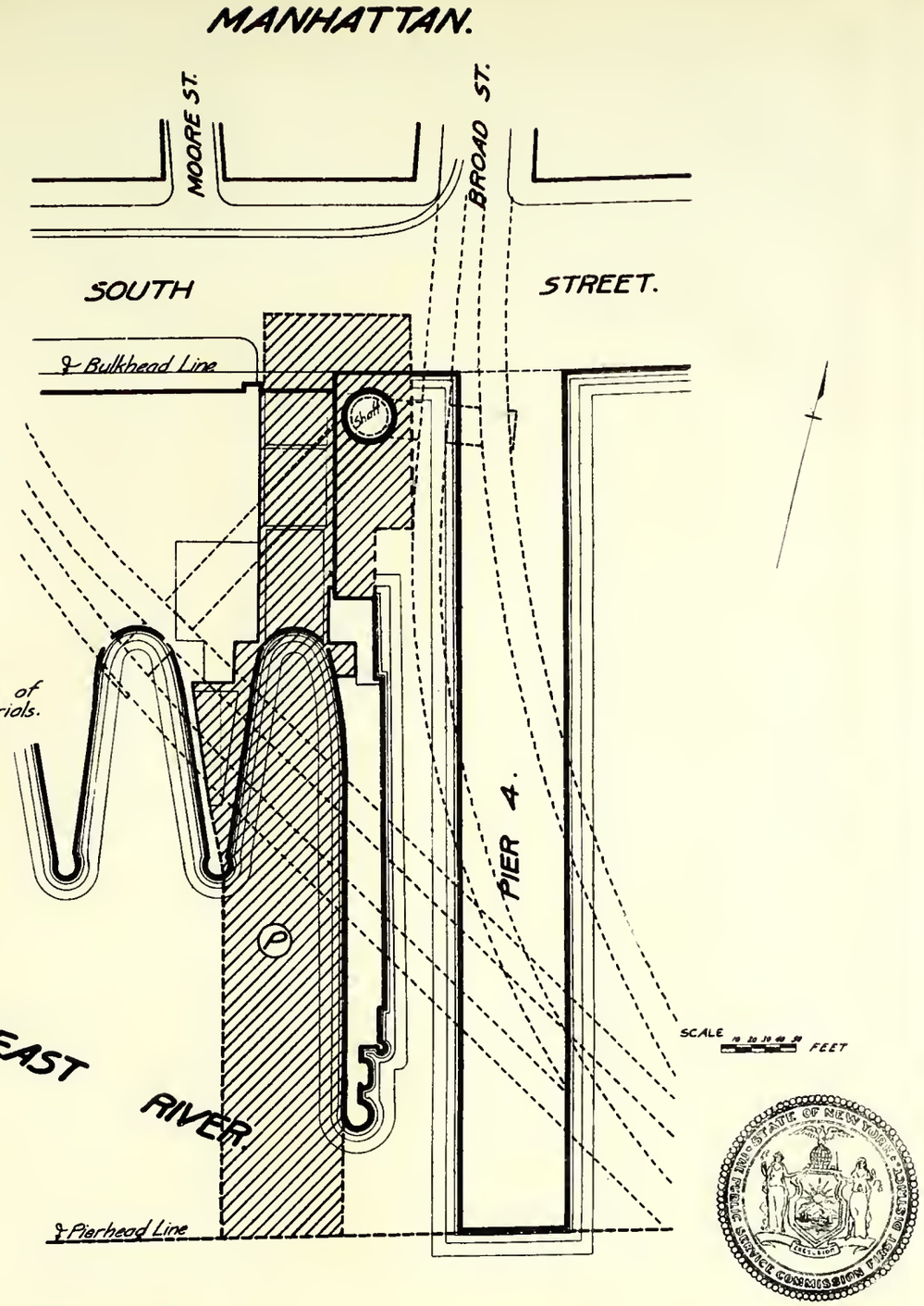
M.B. BROWN PRINTING & BINDING CO. N.Y.




M designate slip and property for shaft, plant and for removal, receipt & storage of materials.

N designates area including viaduct.

P designates ferry property and bulkhead, and portion of slip appurtenant thereto for shaft and plant and for removal, receipt and storage of materials.




WATER FRONT PROPERTIES AND SITES FOR SHAFT AND PLANT.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-2

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 10 20 30 40 50 FEET

Drawn by O. Oberstein

Checked by C.M. Holland

64469

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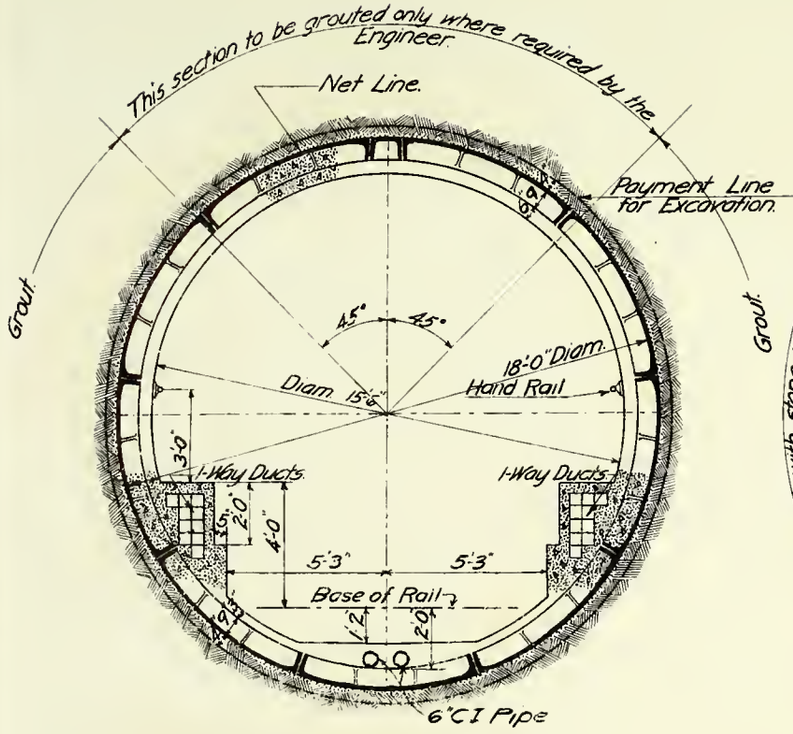
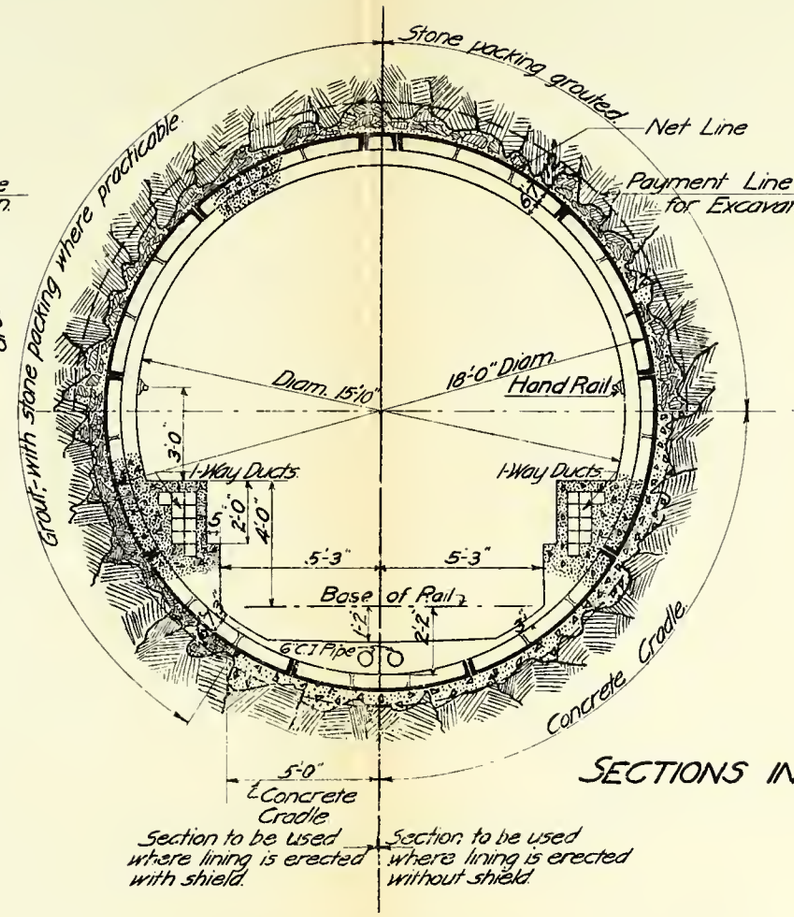
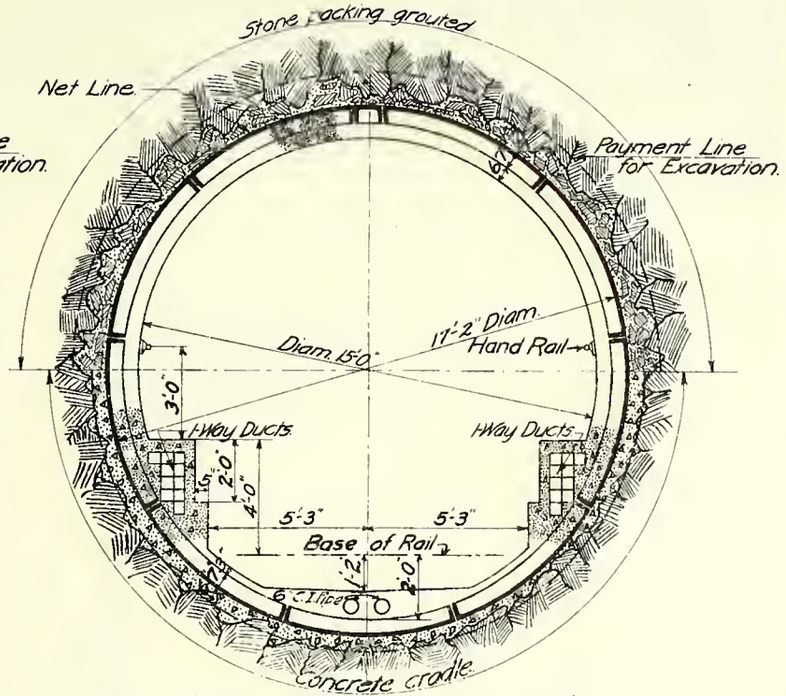



SECTION IN EARTH.




SECTIONS IN ROCK.

This section to be used on tangents where lining is erected without shield.

CAST IRON RINGS.

REFERENCE NOTES.
For Detail of Sections in Rock see drawing No. C-5
" " " Section " Earth " " " C-4

DRAWN BY Palmer
CHECKED BY C.A. McC.

# ROUTE NO. 33

SECTION NO. 2

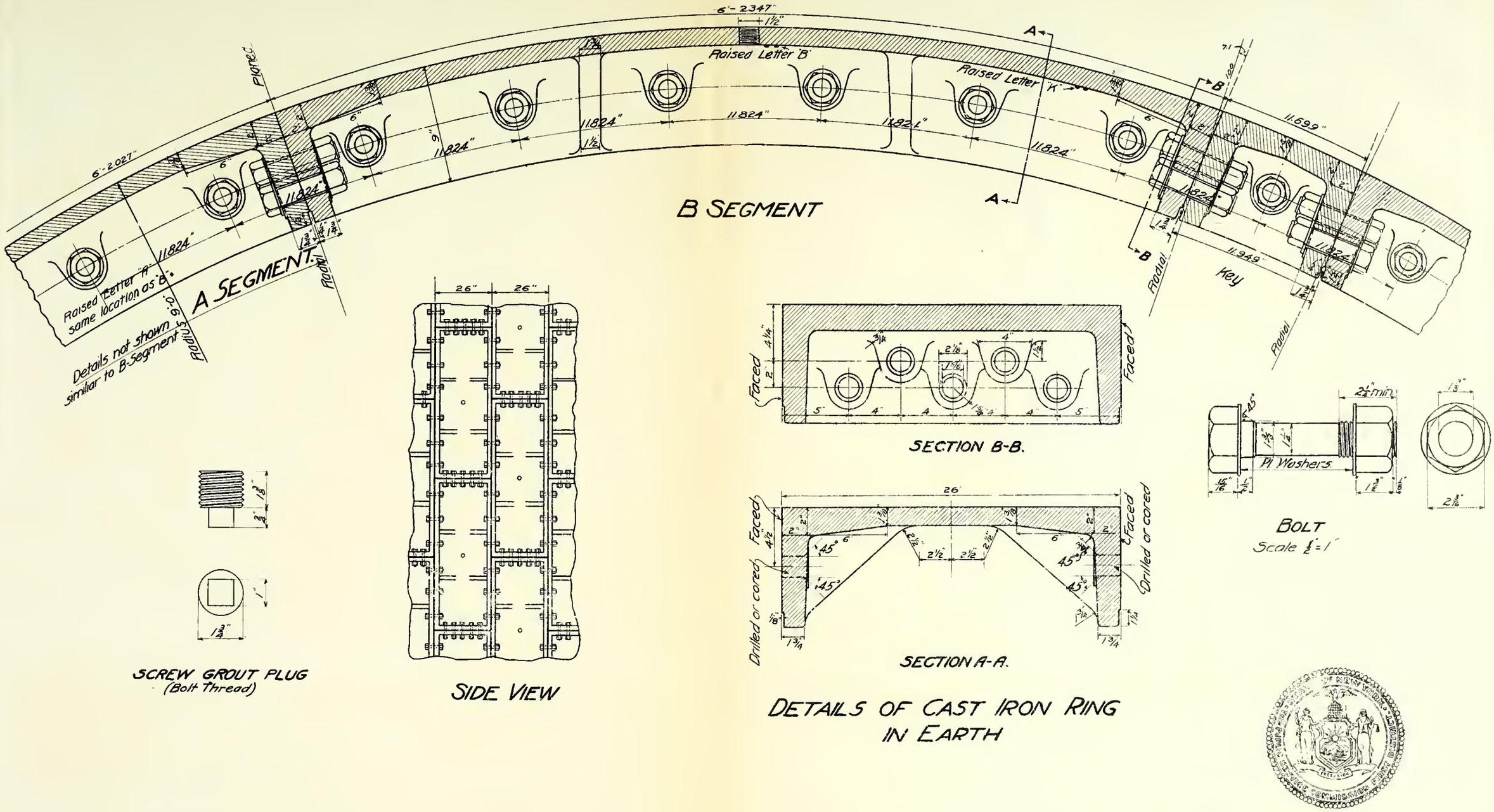
CONTRACT DRAWING NO. C-3

DATE MARCH 14, 1914

Alfred Craven
CHIEF ENGINEER

SCALE: 0 1 2 3 FEET

M.B. BROWN PRINTING & BINDING CO. N.Y.




# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-4

DATE MARCH 14, 1914

CHIEF ENGINEER

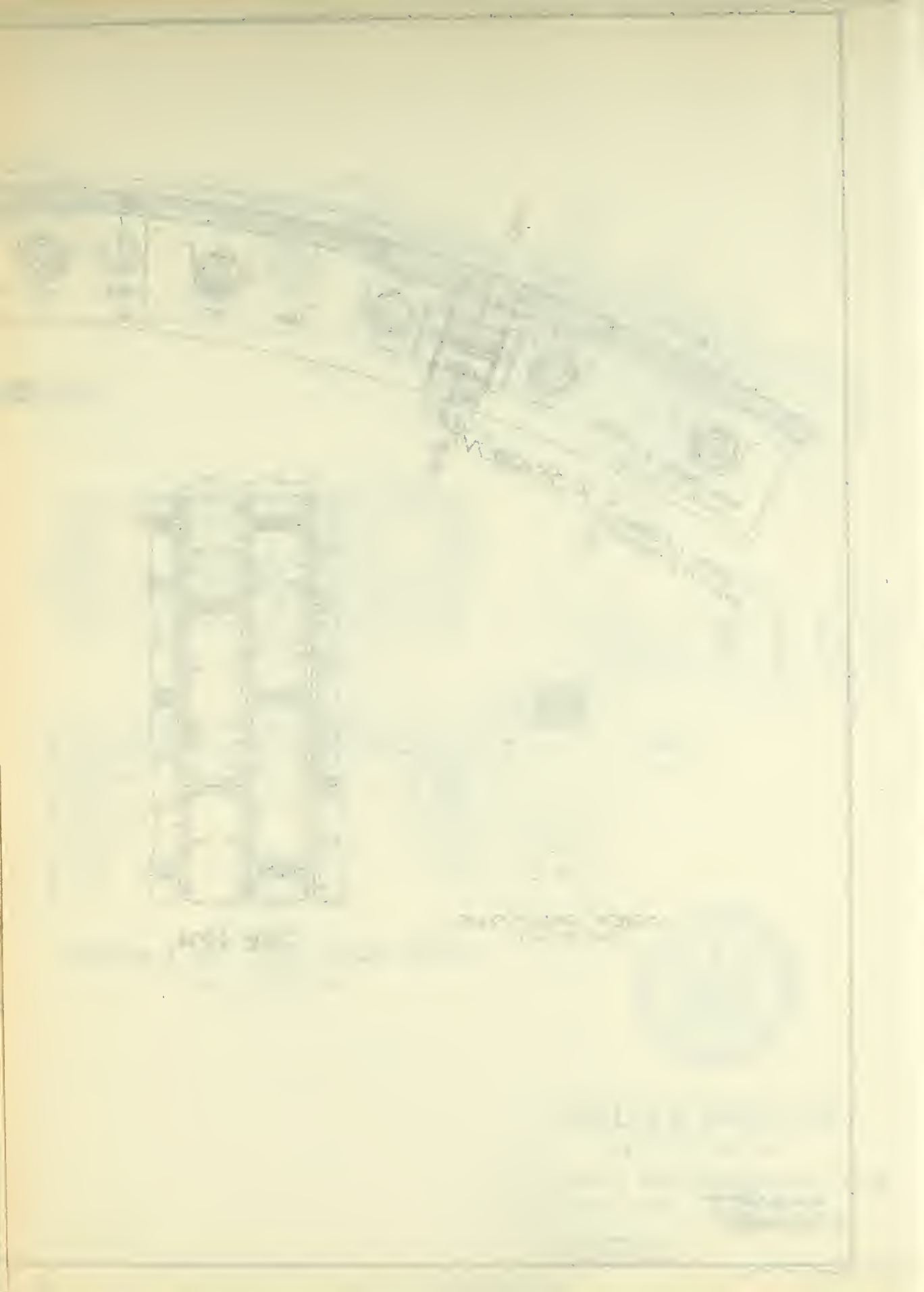
SCALE: 0 2 4 6 INCHES; 0 1 2 3 FEET INCHES

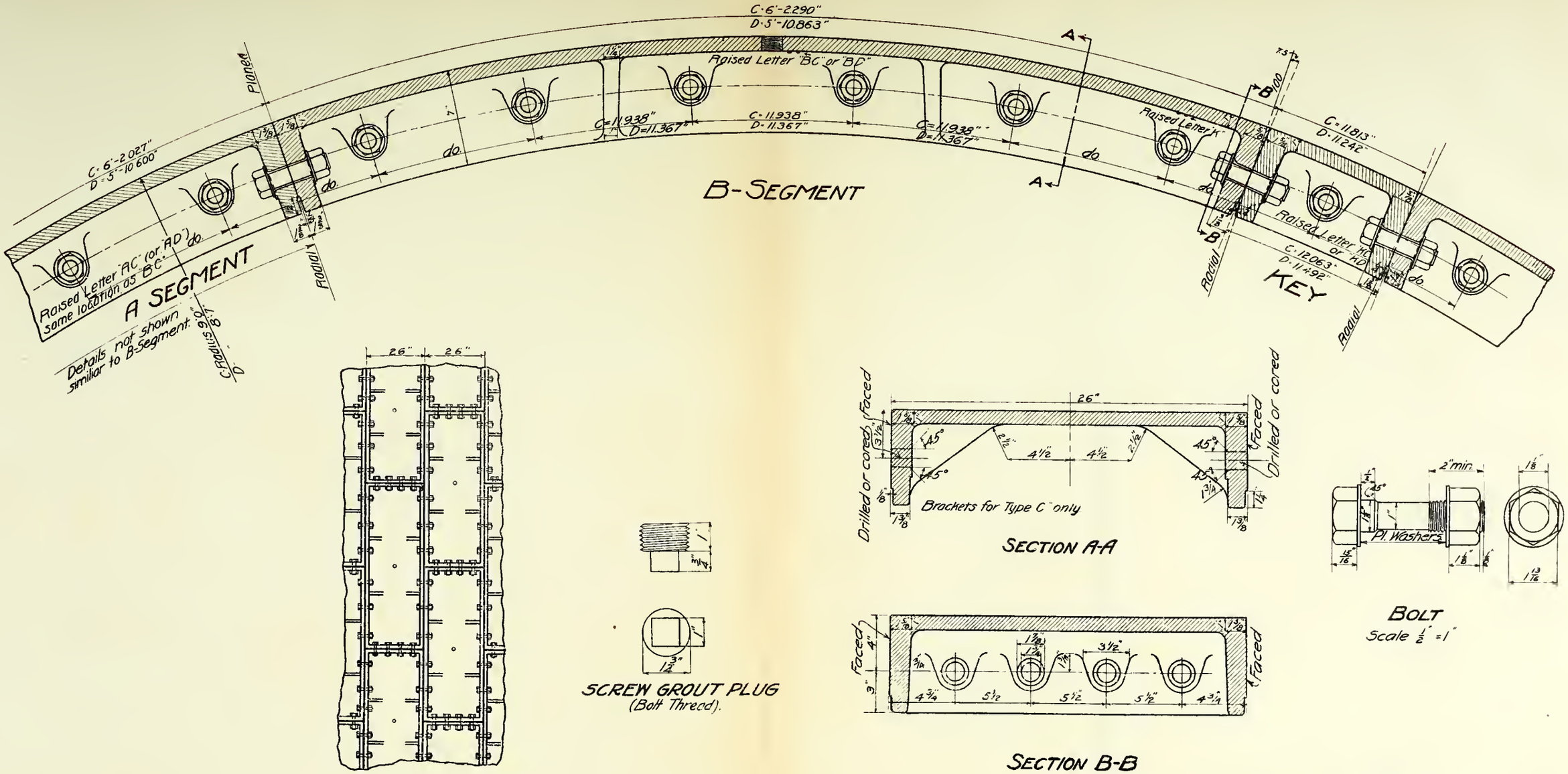
DRAWN BY Palmer

CHECKED BY McC

64469

M.B. BROWN PRINTING & BINDING CO. N.Y.






DETAILS OF CAST IRON RINGS IN ROCK.

C for lining erected behind shield
D " " not " " "

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-5

DATE MARCH 14, 1914

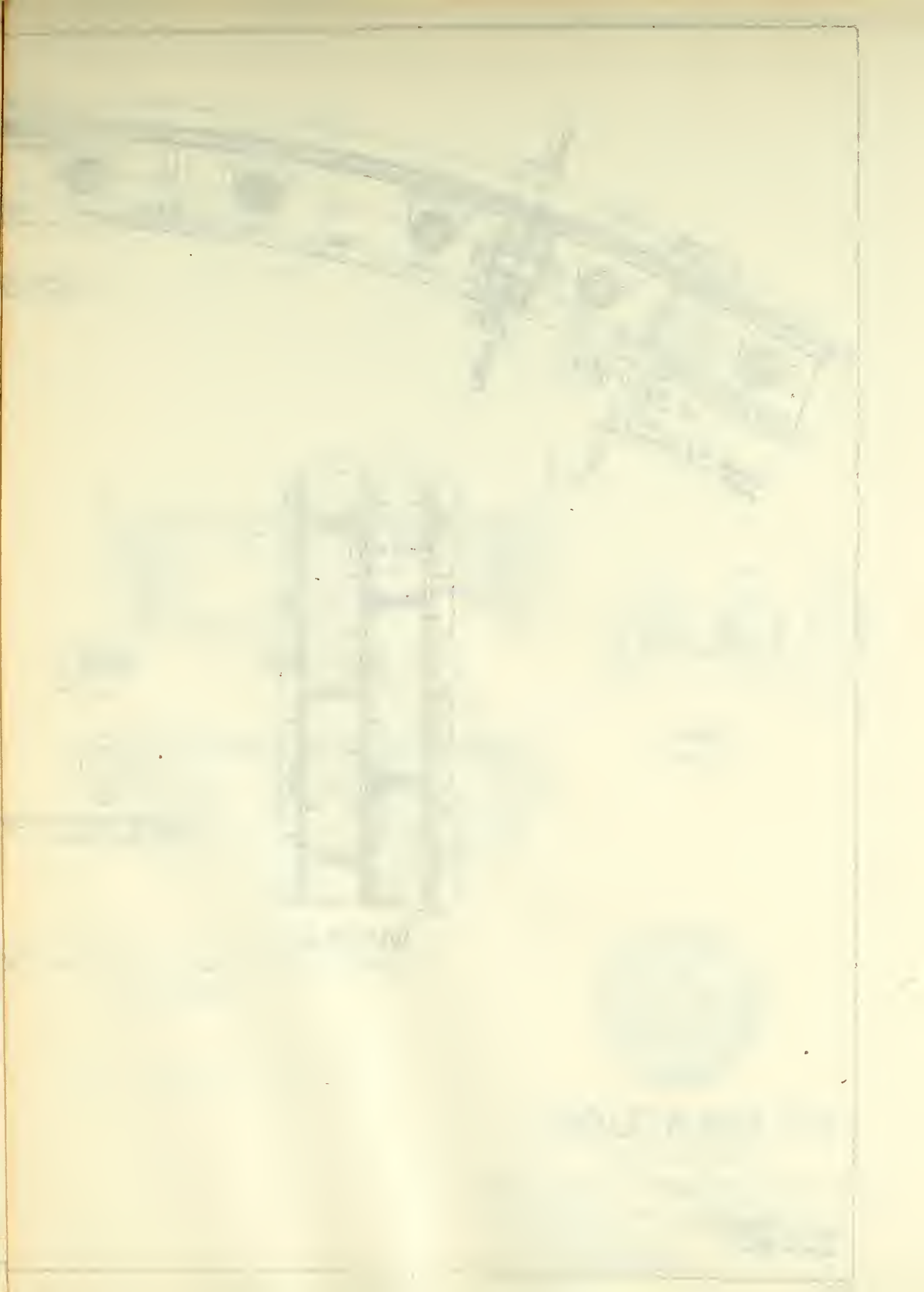
CHIEF ENGINEER

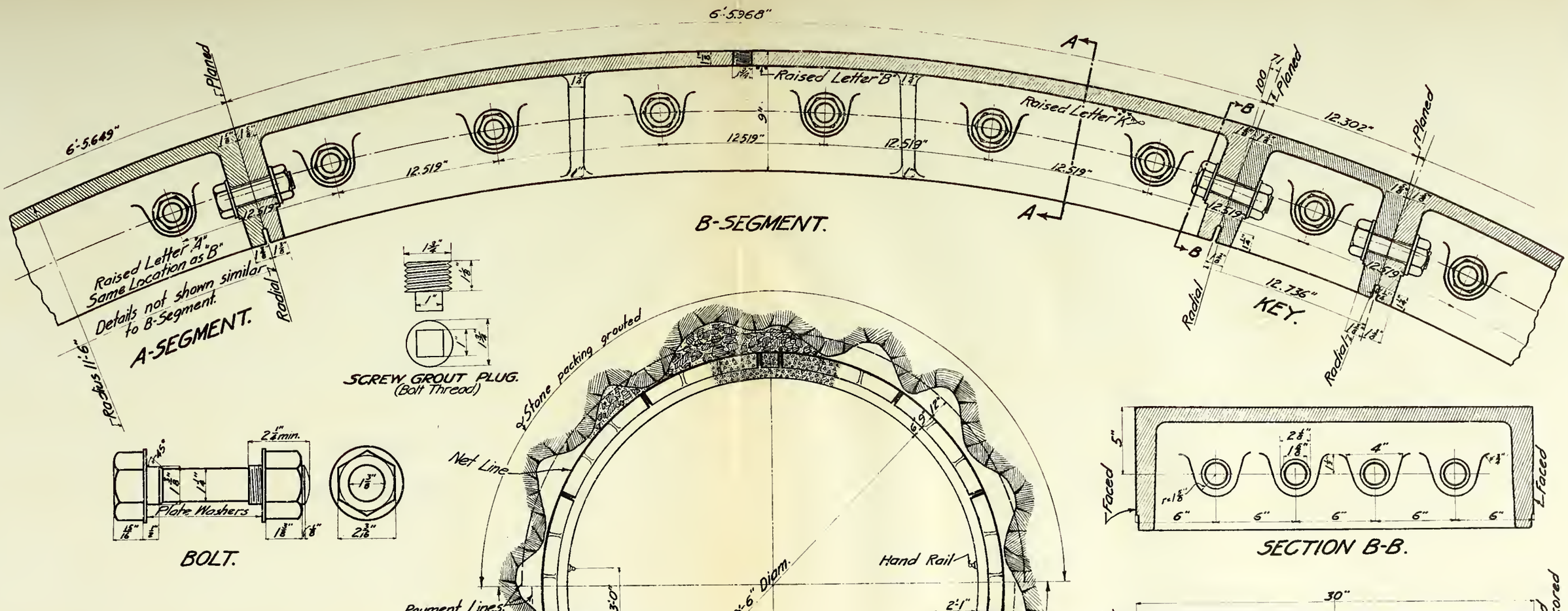
SCALE: 0 2 4 6 INCHES; 0 1 2 3 FEET; INCHES

DRAWN BY Ralmer
CHECKED BY McC.

64460

M.B. BROWN PRINTING & BINDING CO. N.Y.






# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-6

DATE MARCH 14, 1914

CHIEF ENGINEER

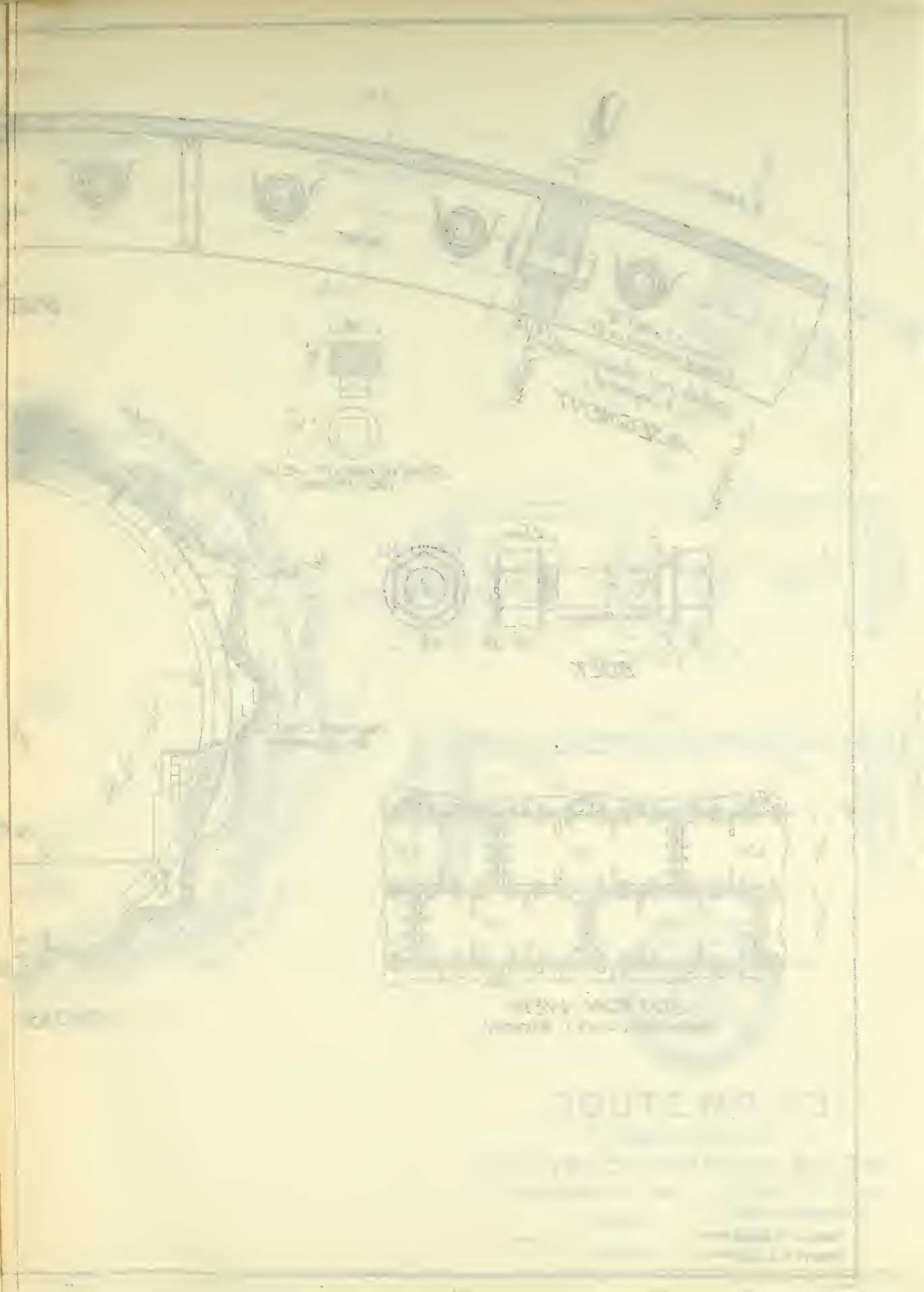
SCALE — INCHES — FEET

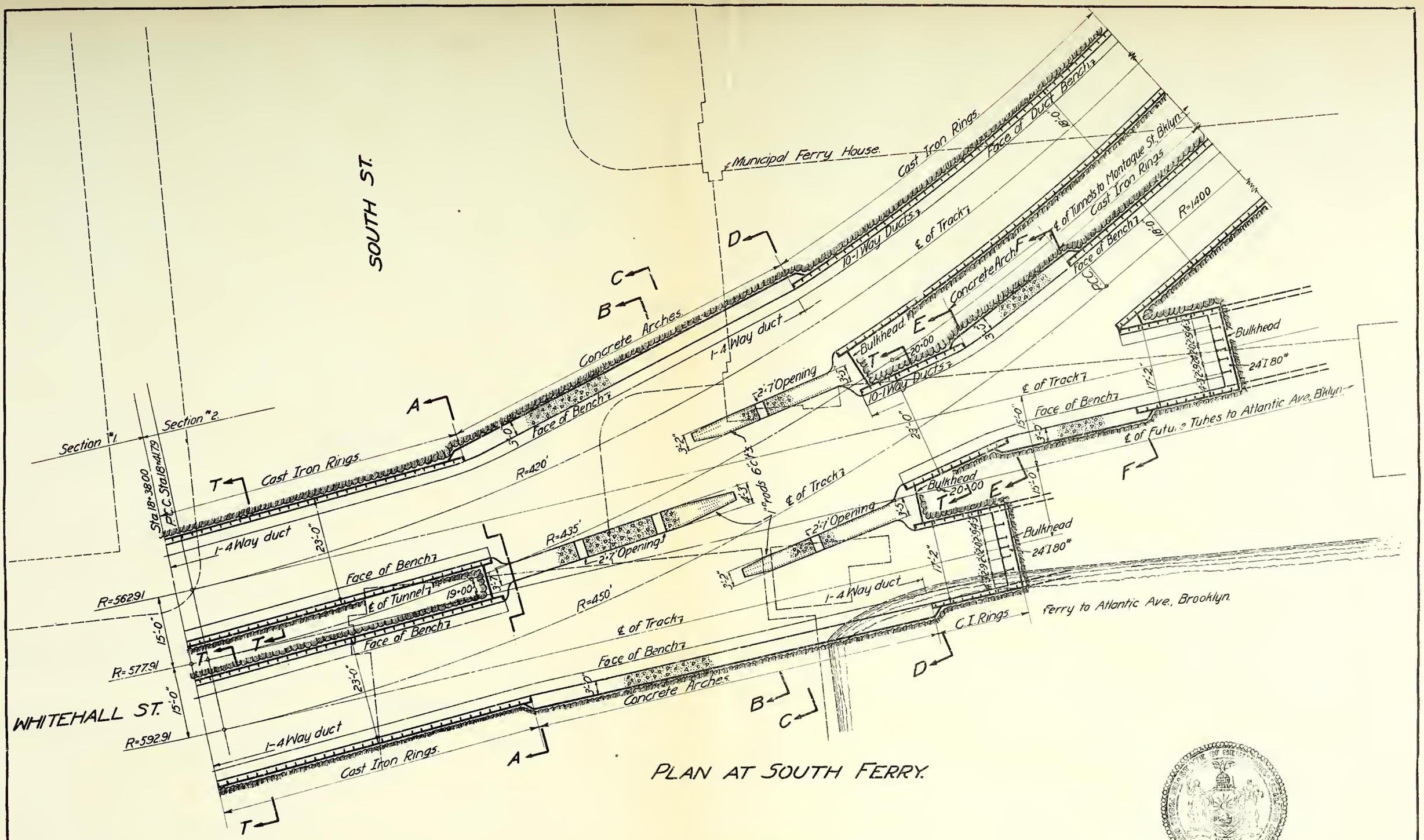
DRAWN BY N. Goldschlag

CHECKED BY C.M. Holland

64469

M.S. BROWN PRINTING & BINDING CO. N.Y.






PLAN AT SOUTH FERRY.

## REFERENCE NOTES.

| | | | | |
|---|---|---|---|---|
| For Section | A-A, | see Drawing | No. | C-8 |
| " " | B-B | " " | " | C-9 |
| " " | C-C | " " | " | C-10 |
| " " | D-D | " " | " | C-11 |
| " " | E-E & F-F | " " | " | C-12 |
| " " | T-T | " " | " | C-6 |

DRAWN BY Cattano
CHECKED BY Nicholson.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-7

DATE MARCH 14, 1914

Nelson Graves
CHIEF ENGINEER

SCALE: 0 5 10 FEET

64469

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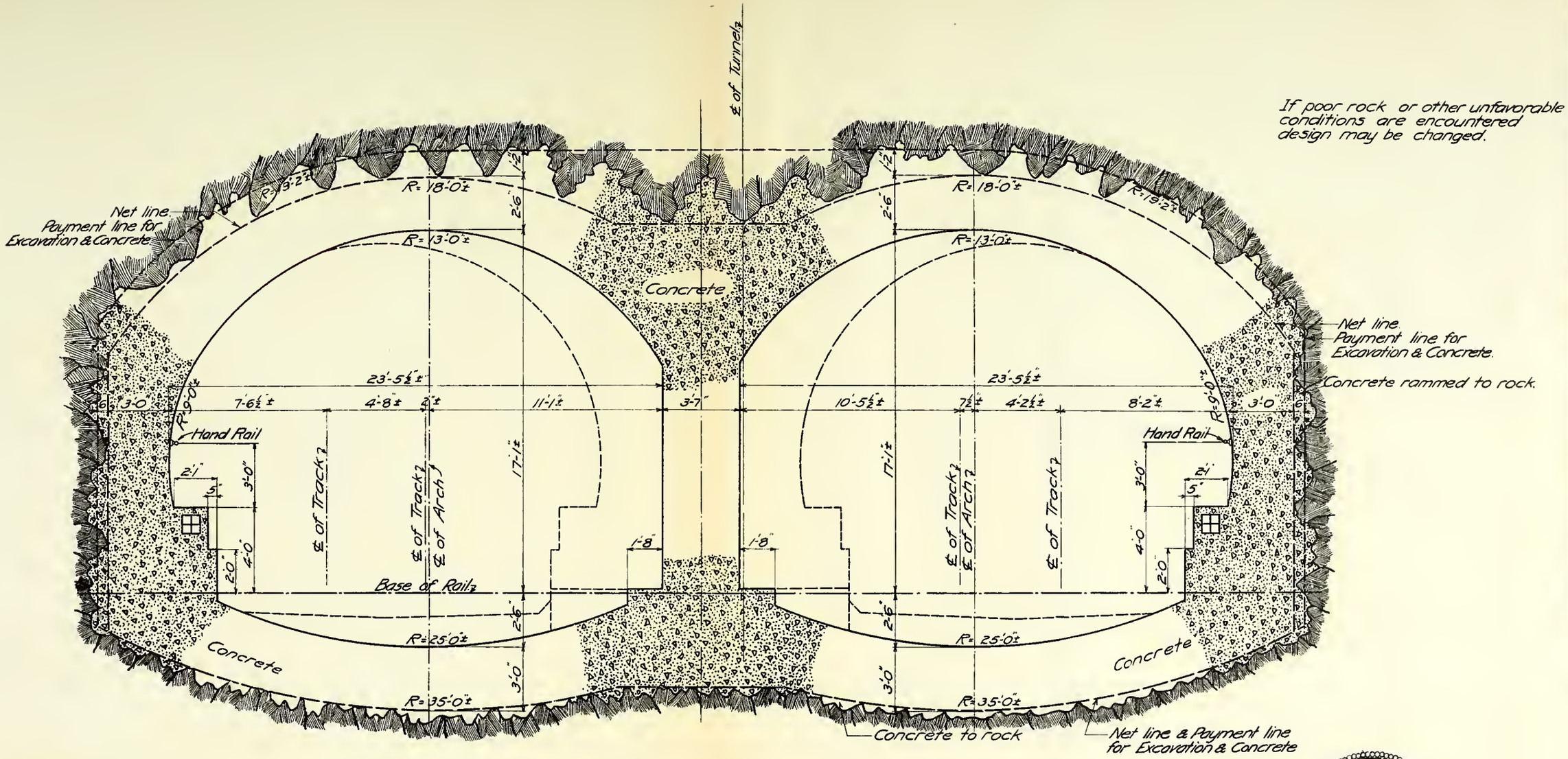



SECTION A-A.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-8

DATE MARCH 14, 1914

CHIEF ENGINEER

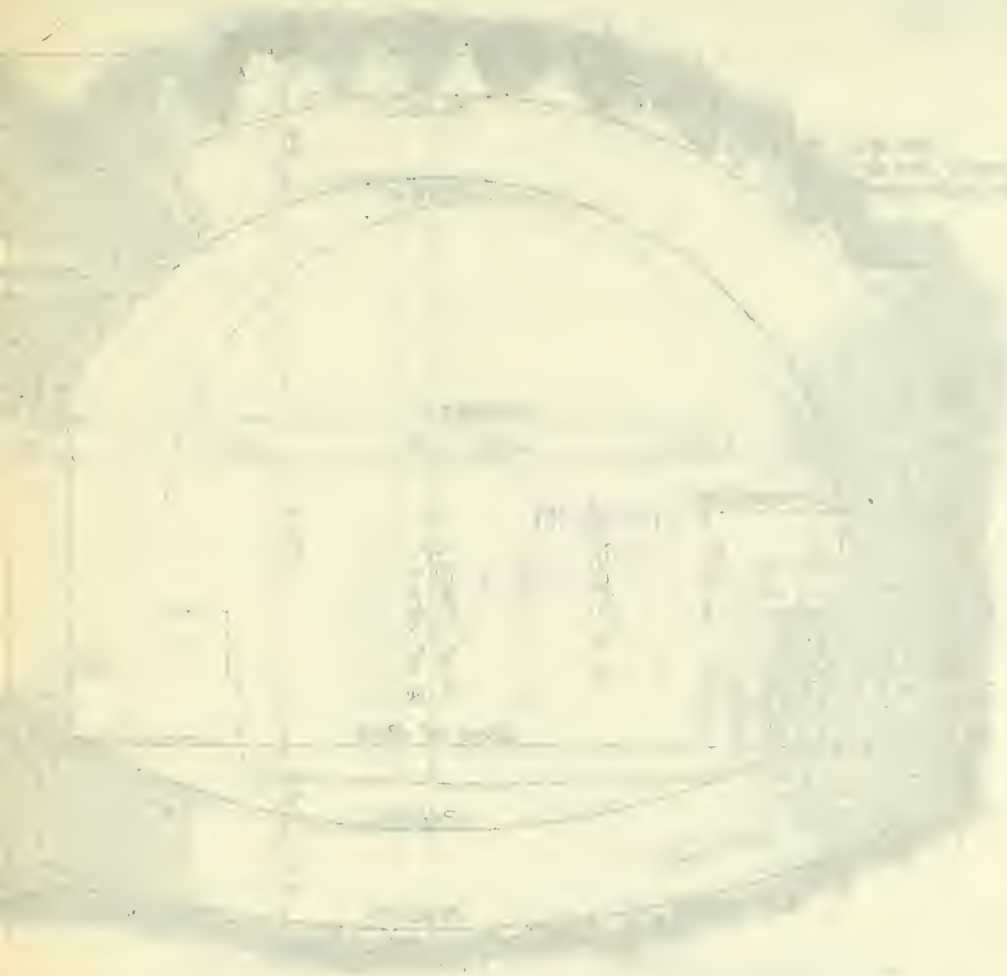
SCALE: 0 1 2 3 FEET

DRAWN BY Cattano.
CHECKED BY Nicholson.

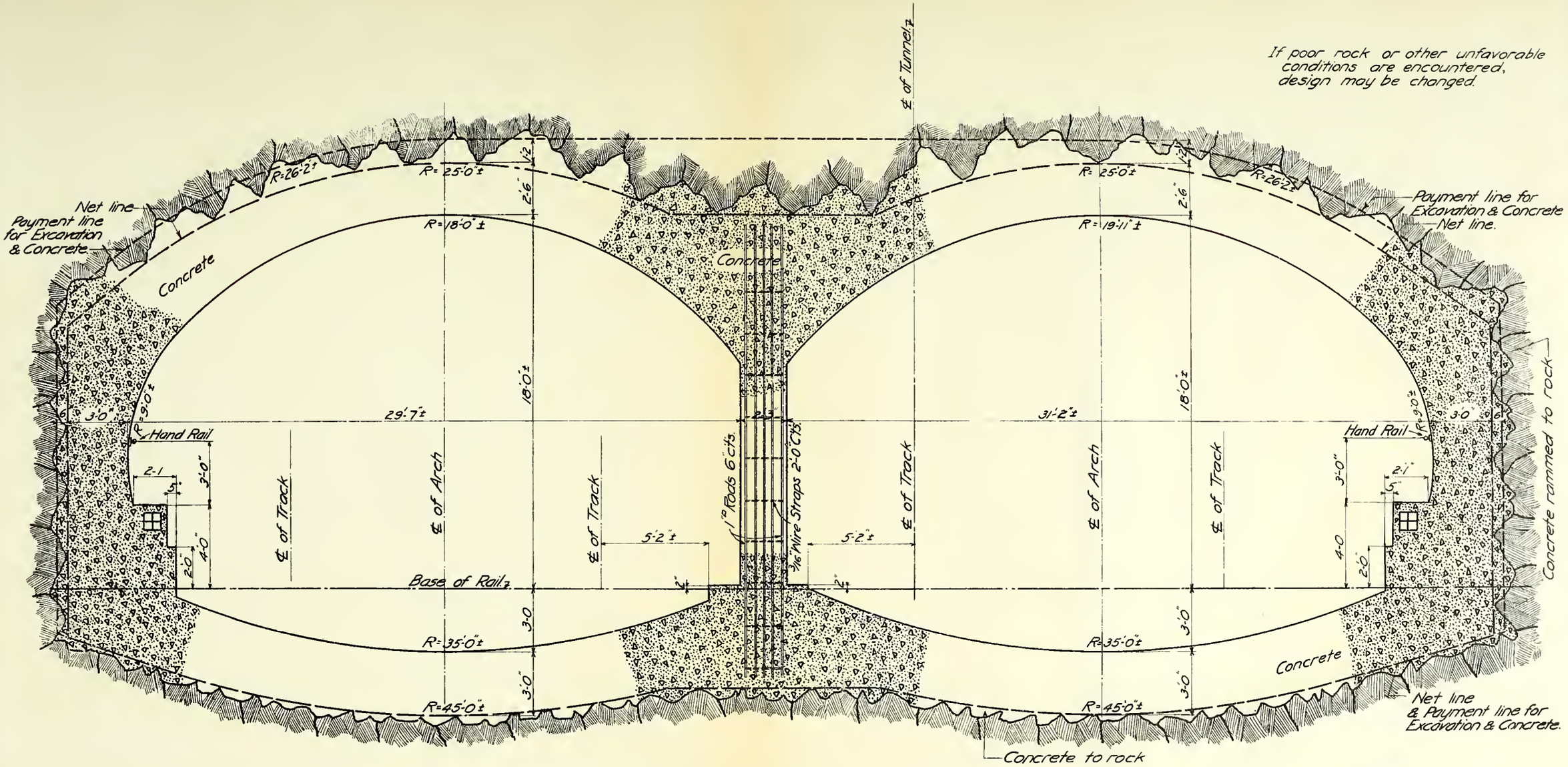
B-3

64469

I.B. BROWN PRINTING & BINDING CO N.Y.



If poor rock or other unfavorable conditions are encountered, design may be changed.




## SECTION B-B

NOTE: Arrangement of wire straps in walls similar to that shown on drawing No. C-11.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-9

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE: 0 1 2 3 FEET

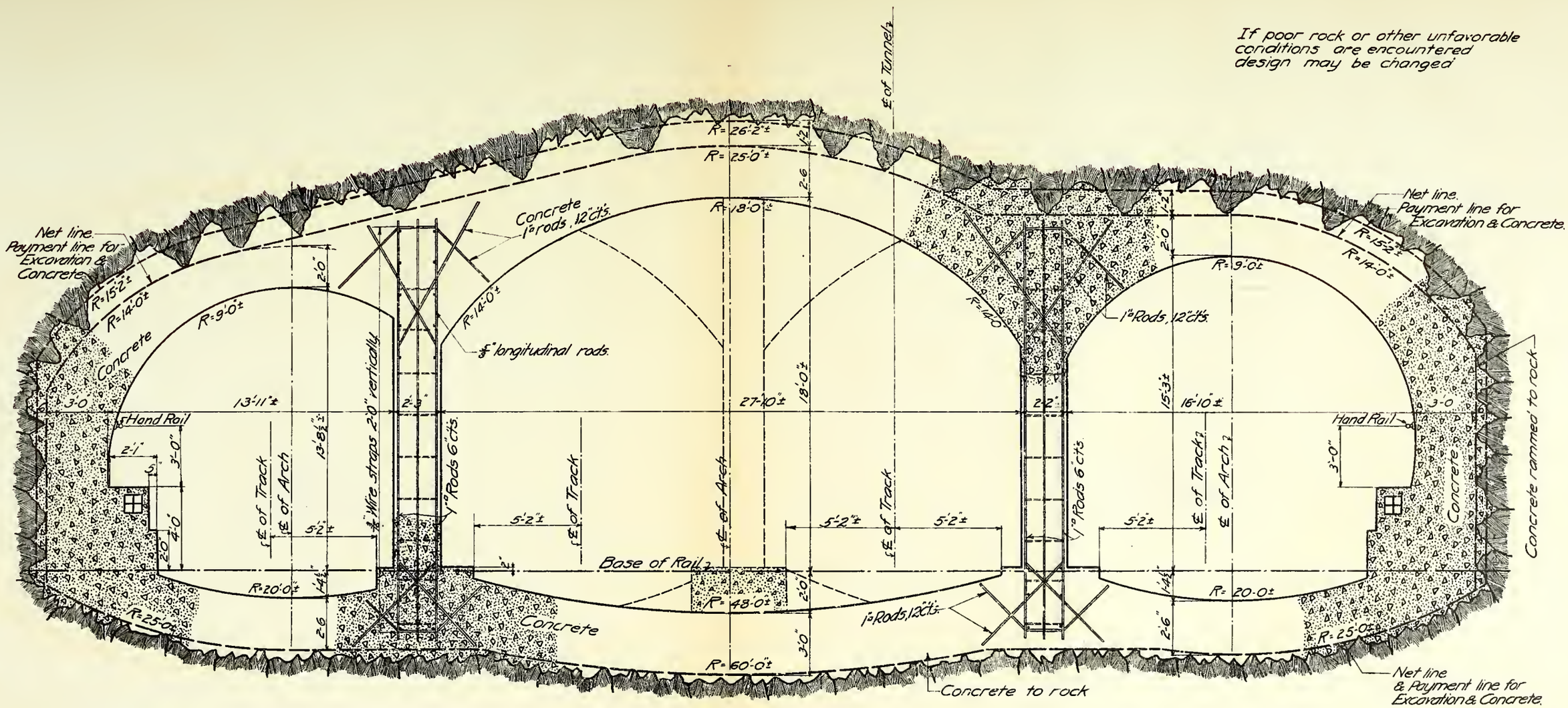
DRAWN BY Gattano.

CHECKED BY Nicholson.

64469

M.B BROWN PRINTING & BINDING CO N.Y

If poor rock or other unfavorable conditions are encountered design may be changed




SECTION C-C

Note:-
Longitudinal rods to be lapped 2'-0" at splices.
Arrangement of wire straps in walls similar to that shown on Dwg. C-11.

DRAWN BY Cattano
CHECKED BY Nicholson

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-10

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE: 0 1 2 3 FEET

64469

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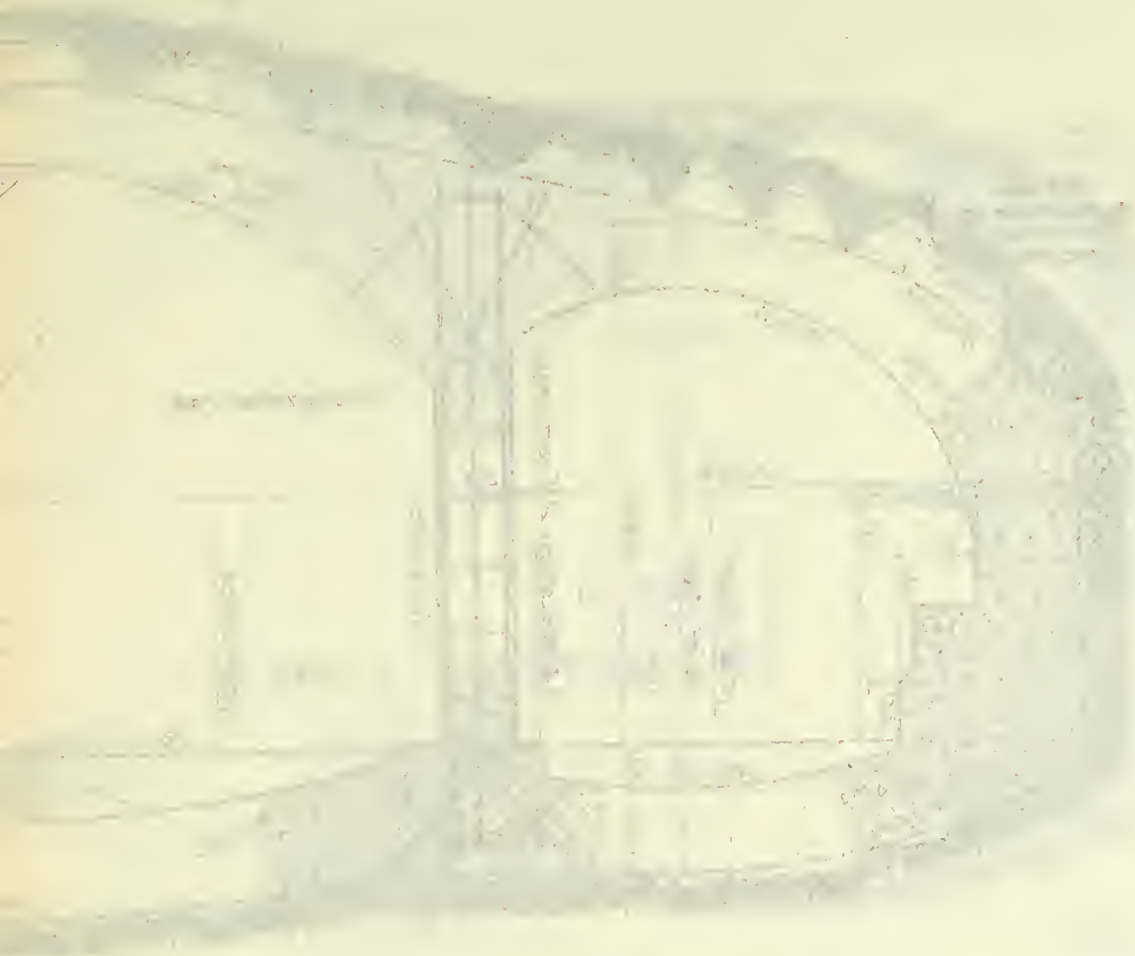
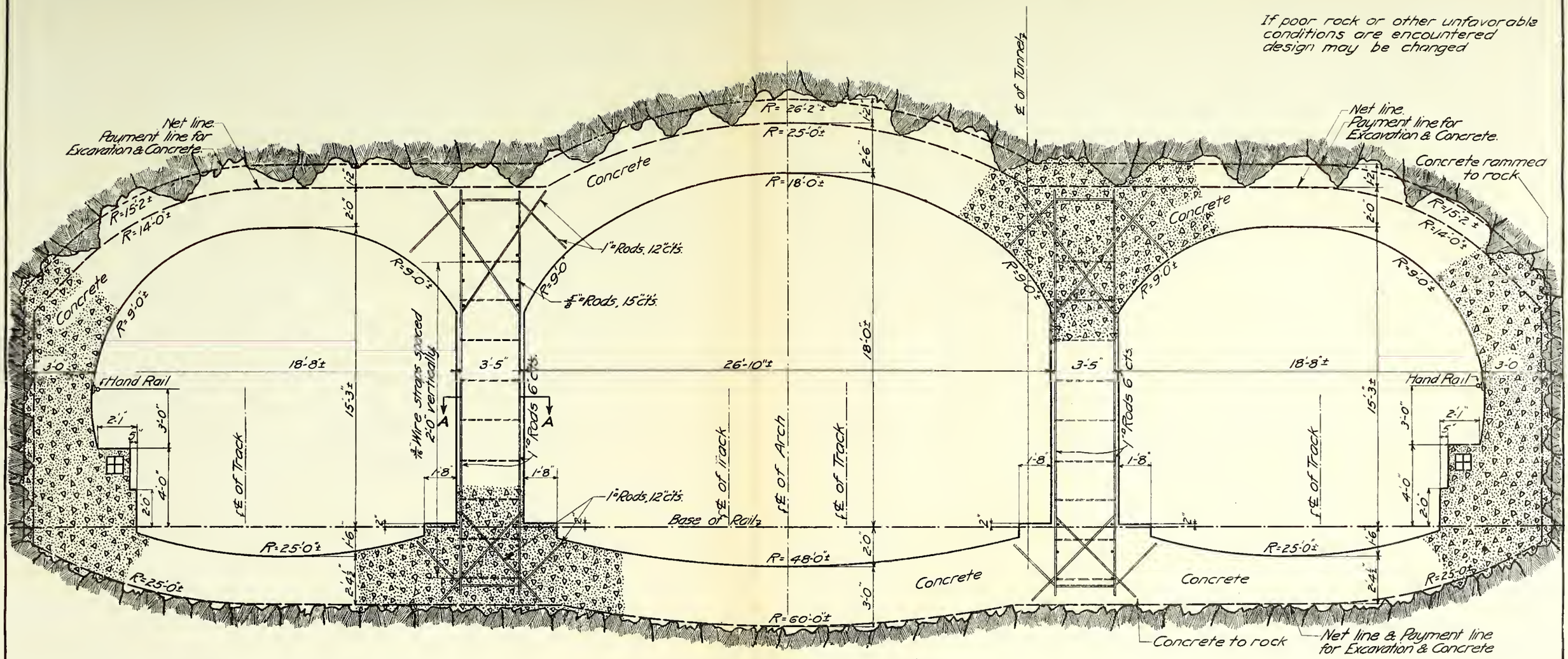
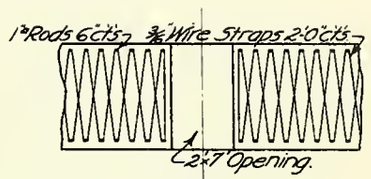


If poor rock or other unfavorable conditions are encountered design may be changed




NOTE:
Longitudinal rods to be lapped 2'-0" at splices.

SECTION - DD




SECTION A-A.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-11

DATE MARCH 14, 1914

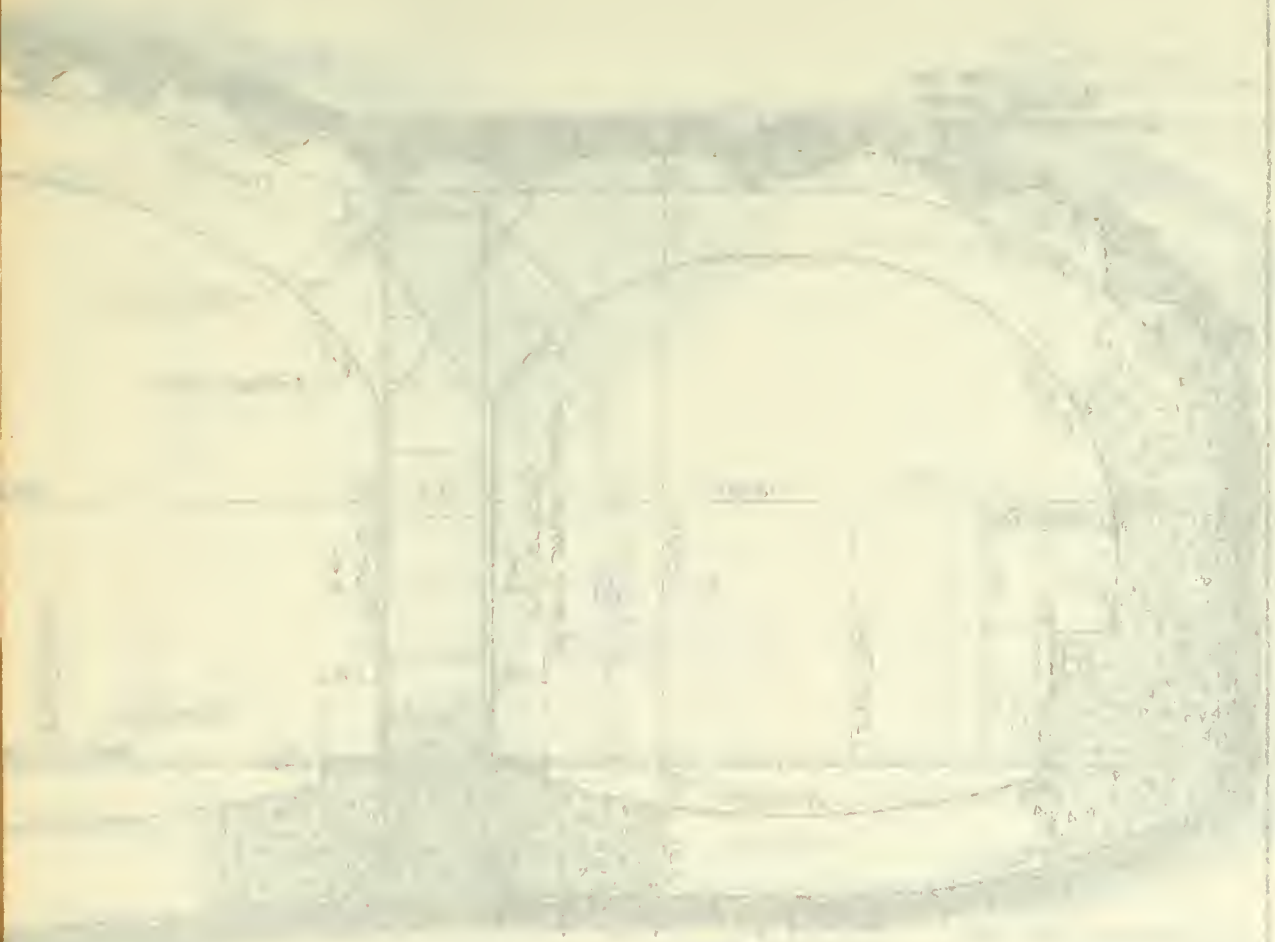
CHIEF ENGINEER

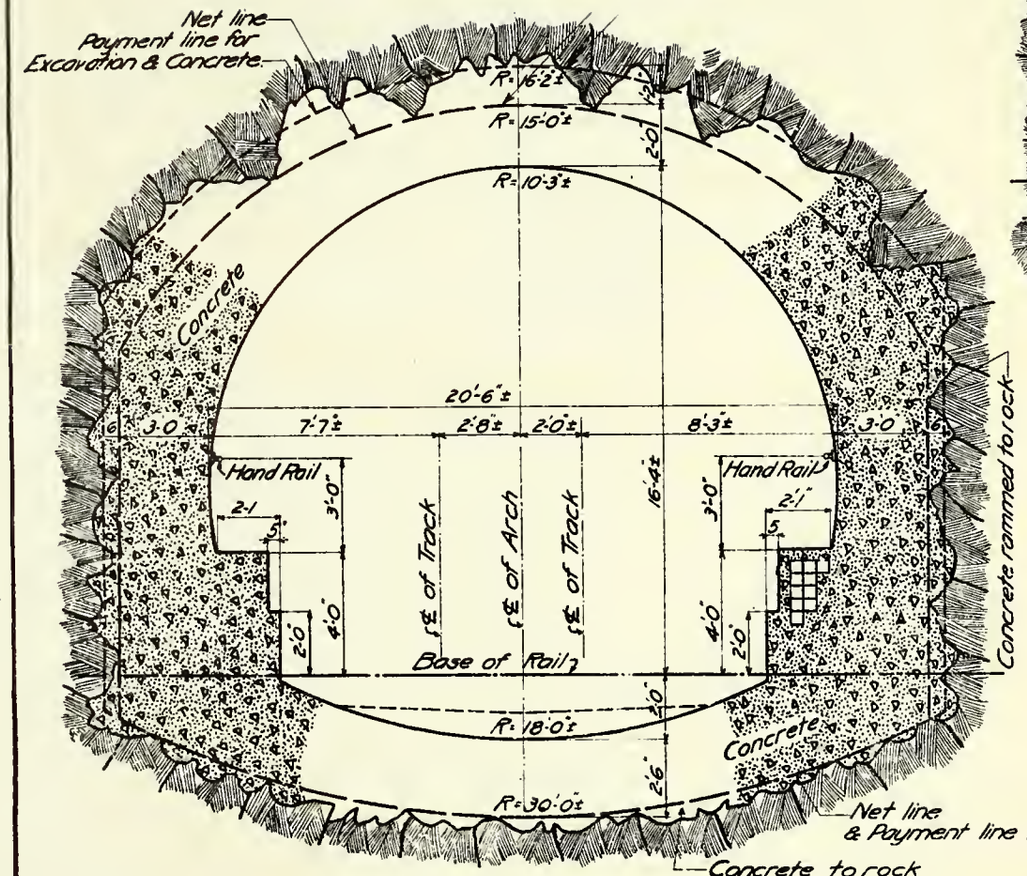
SCALE 0 1 2 3 FEET

DRAWN BY Catano.
CHECKED BY Nicholson.

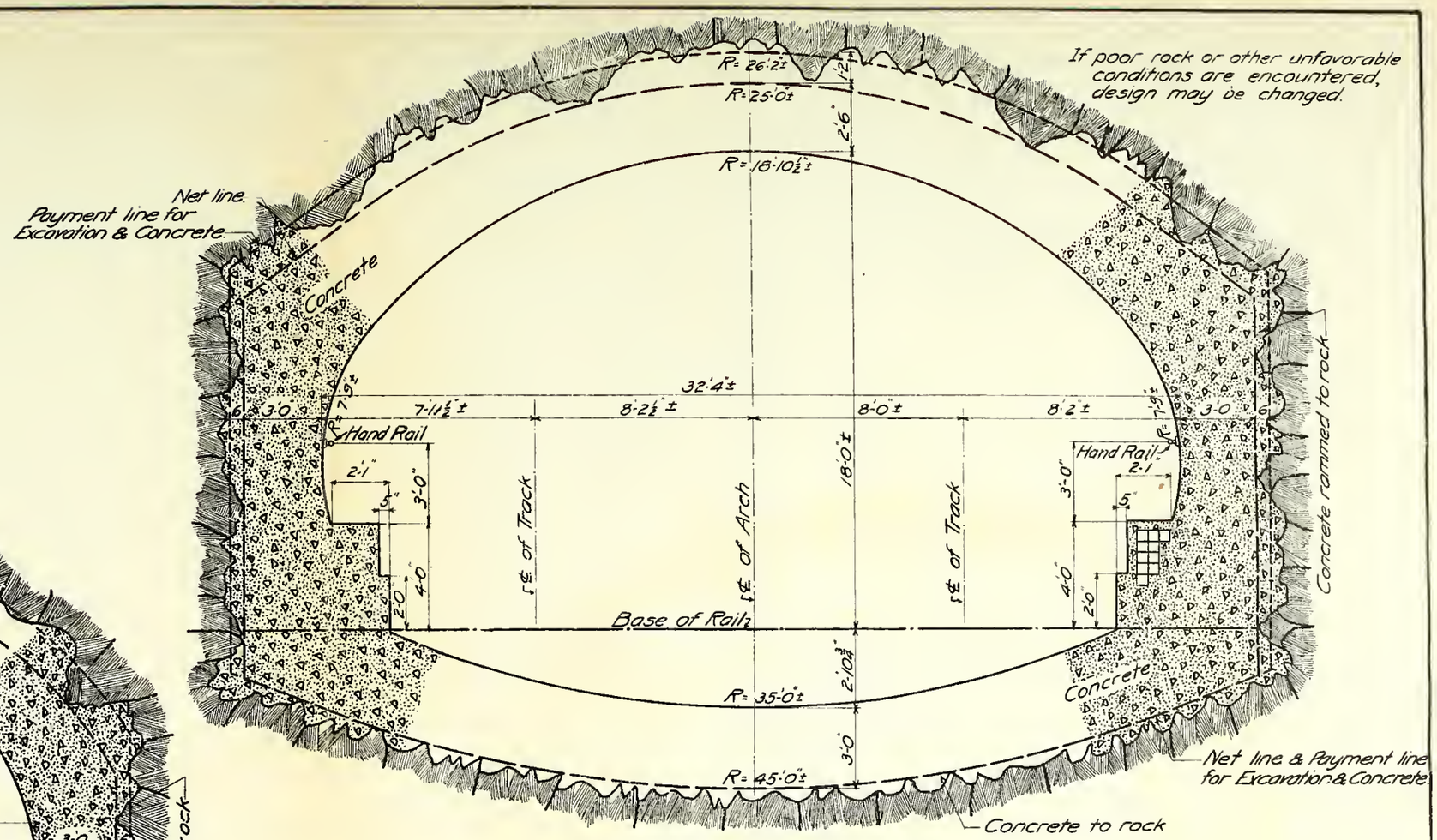
64169

M.B BROWN PRINTING & BINDING CO. N.Y.






SECTION E-E




SECTION F-F

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-12

DATE: MARCH 14, 1914

CHIEF ENGINEER

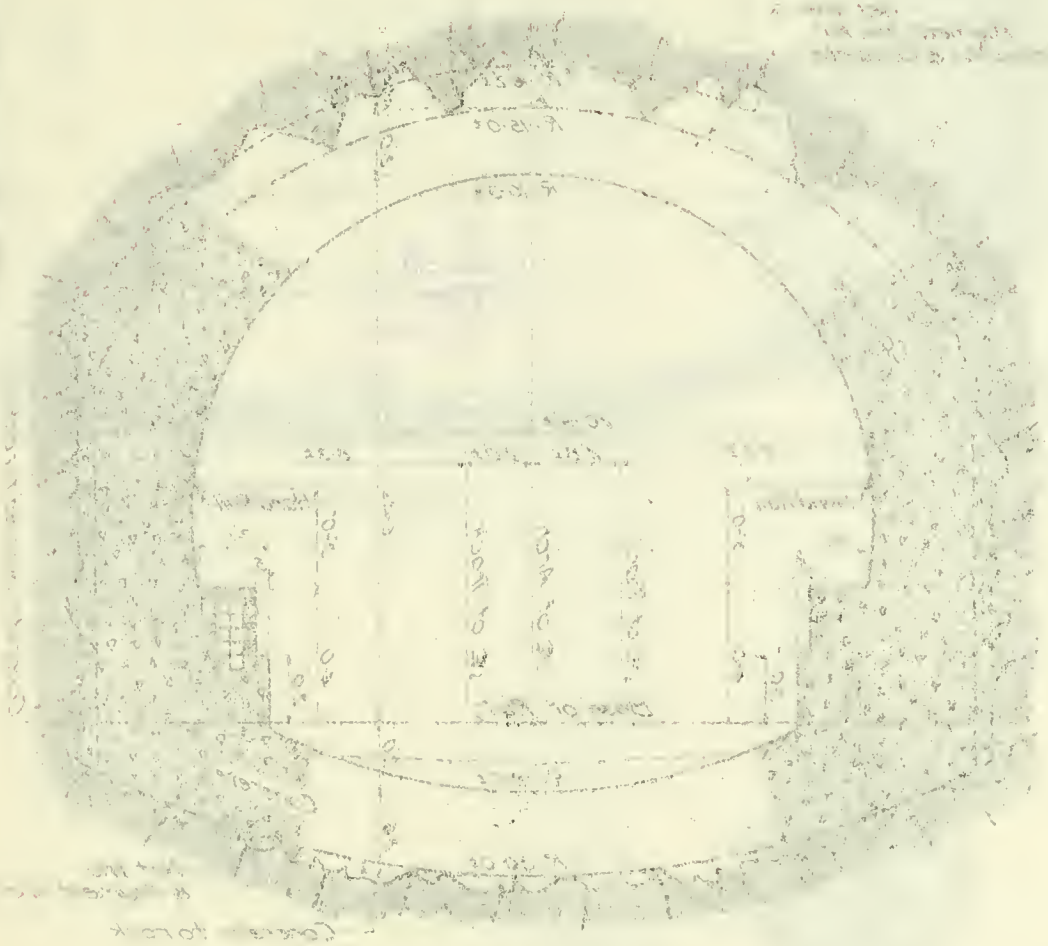
SCALE: 0 1 2 3 FEET

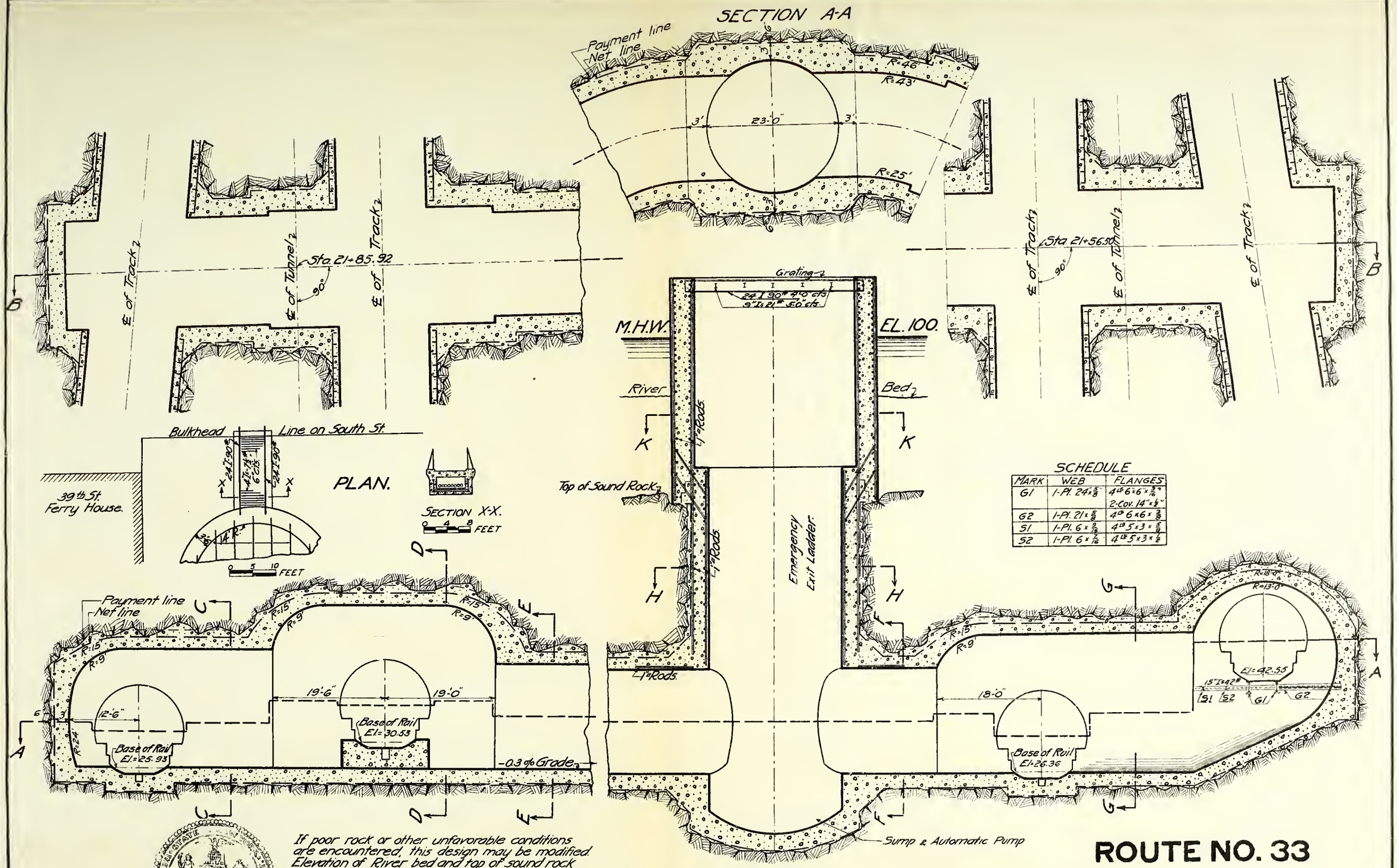
DRAWN BY Cattano.

CHECKED BY Nicholson

64469

M.B. BROWN PRINTING & BINDING CO. N.Y.






If poor rock or other unfavorable conditions are encountered, this design may be modified. Elevation of River bed and top of sound rock approximate only.

DRAWN BY. Goldschlag
CHECKED BY. Holland

# ROUTE NO. 33

## SECTION NO. 2

## CONTRACT DRAWING NO. C-13

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALES 0 4 8 FEET, 0 5 10 FEET

61469

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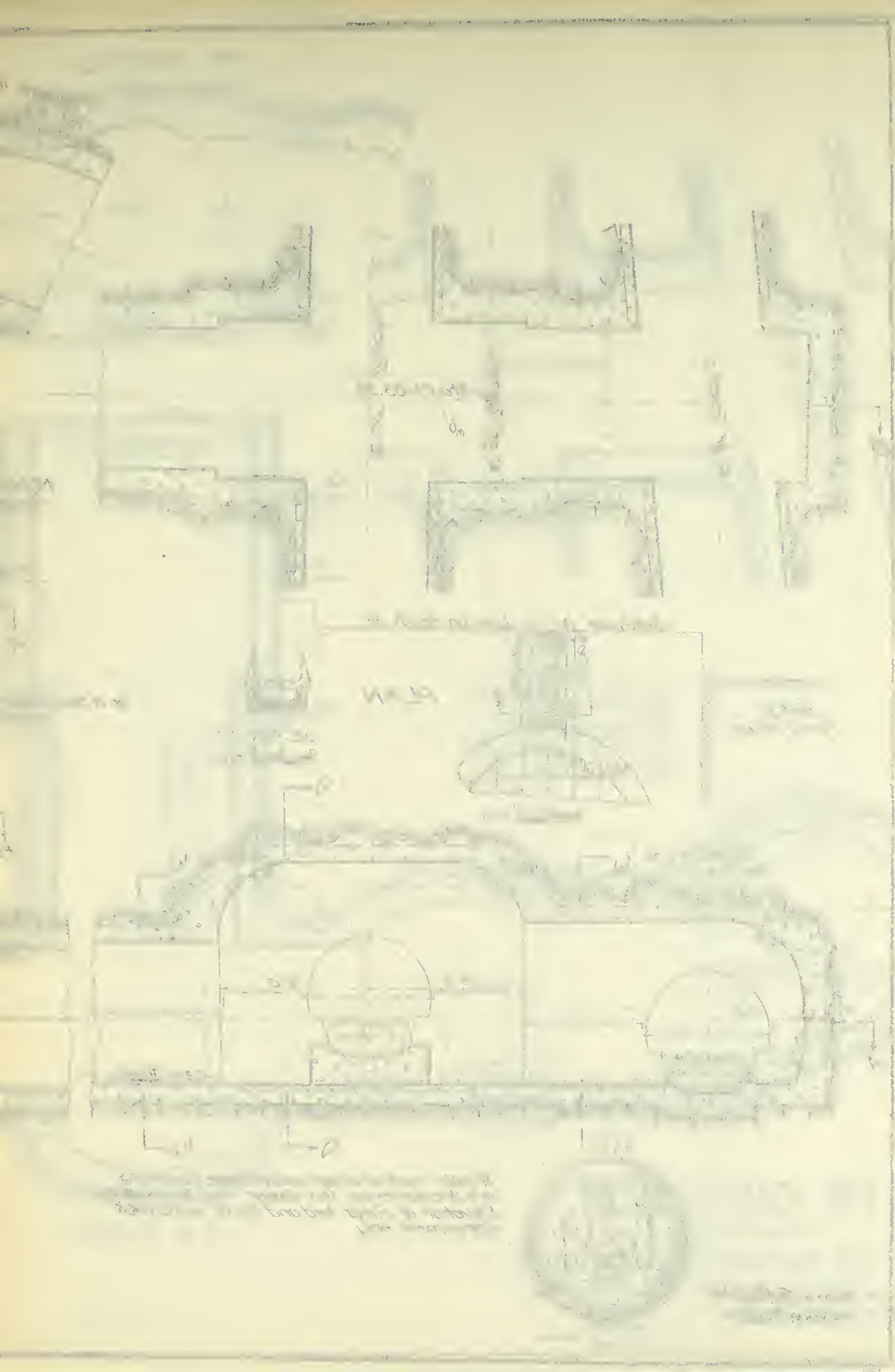
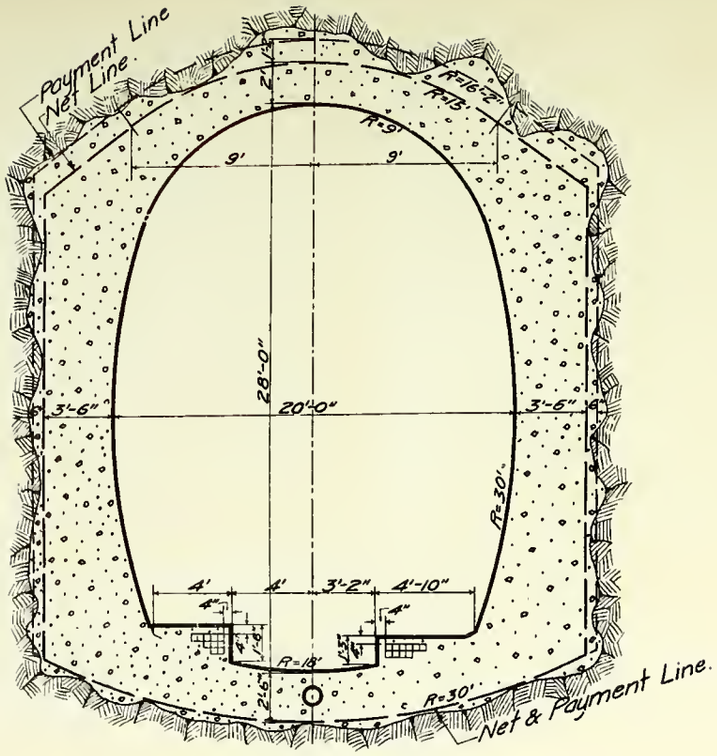
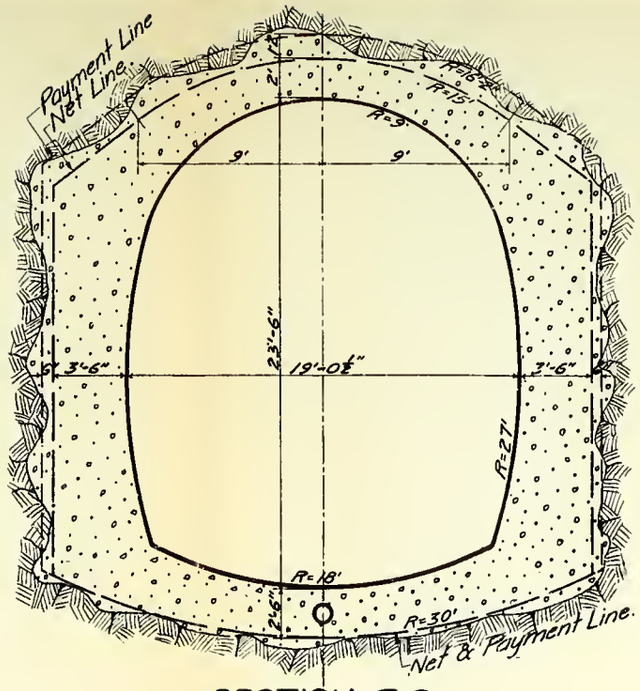
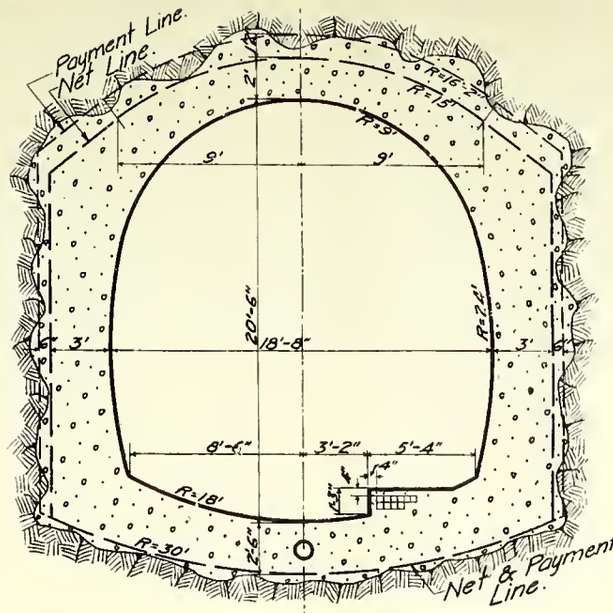




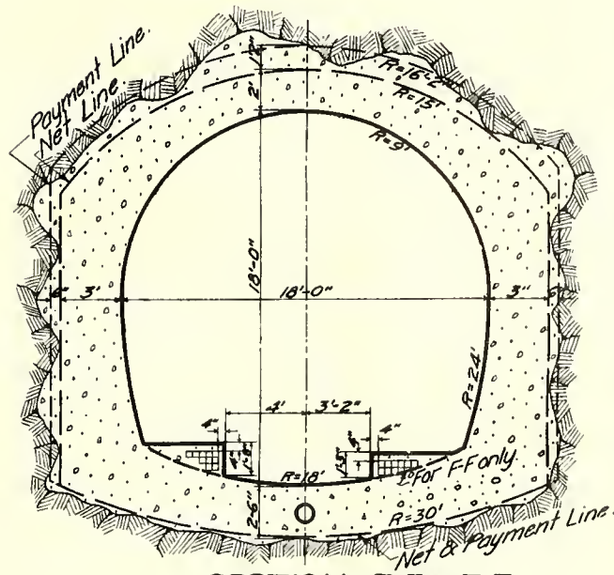

SECTION D-D



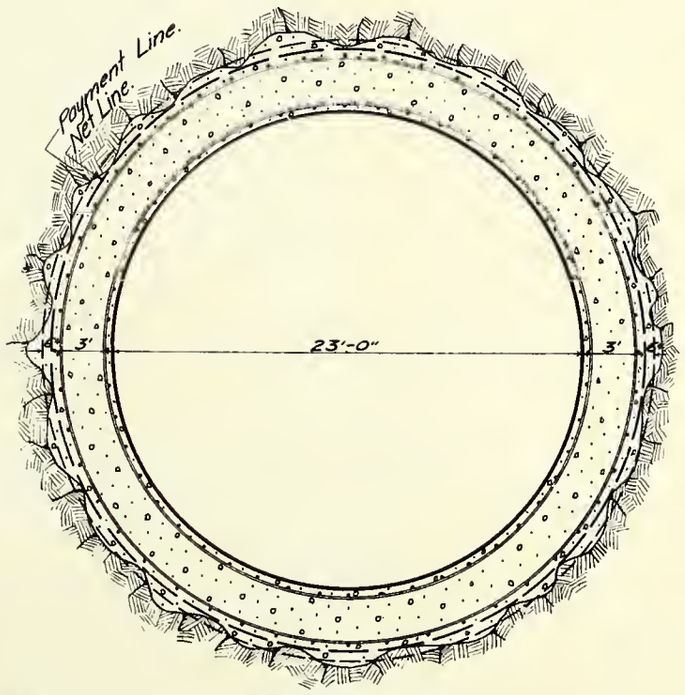

SECTION G-G.



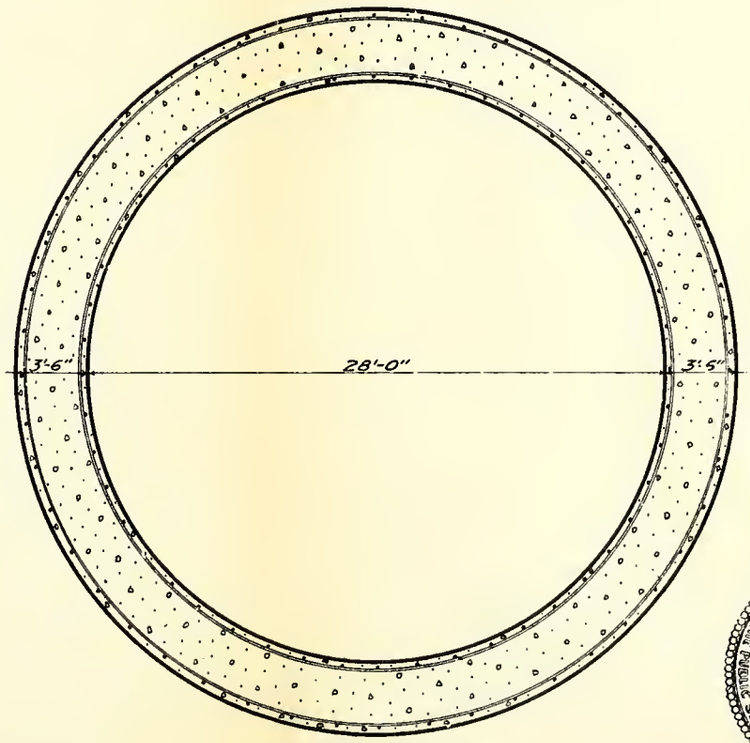

SECTION C-C




SECTION E-E & F-F.




SECTION H-H




SECTION K-K

DRAWN BY Serra
CHECKED BY Holland

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-14

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 0 2 4 FEET

64469

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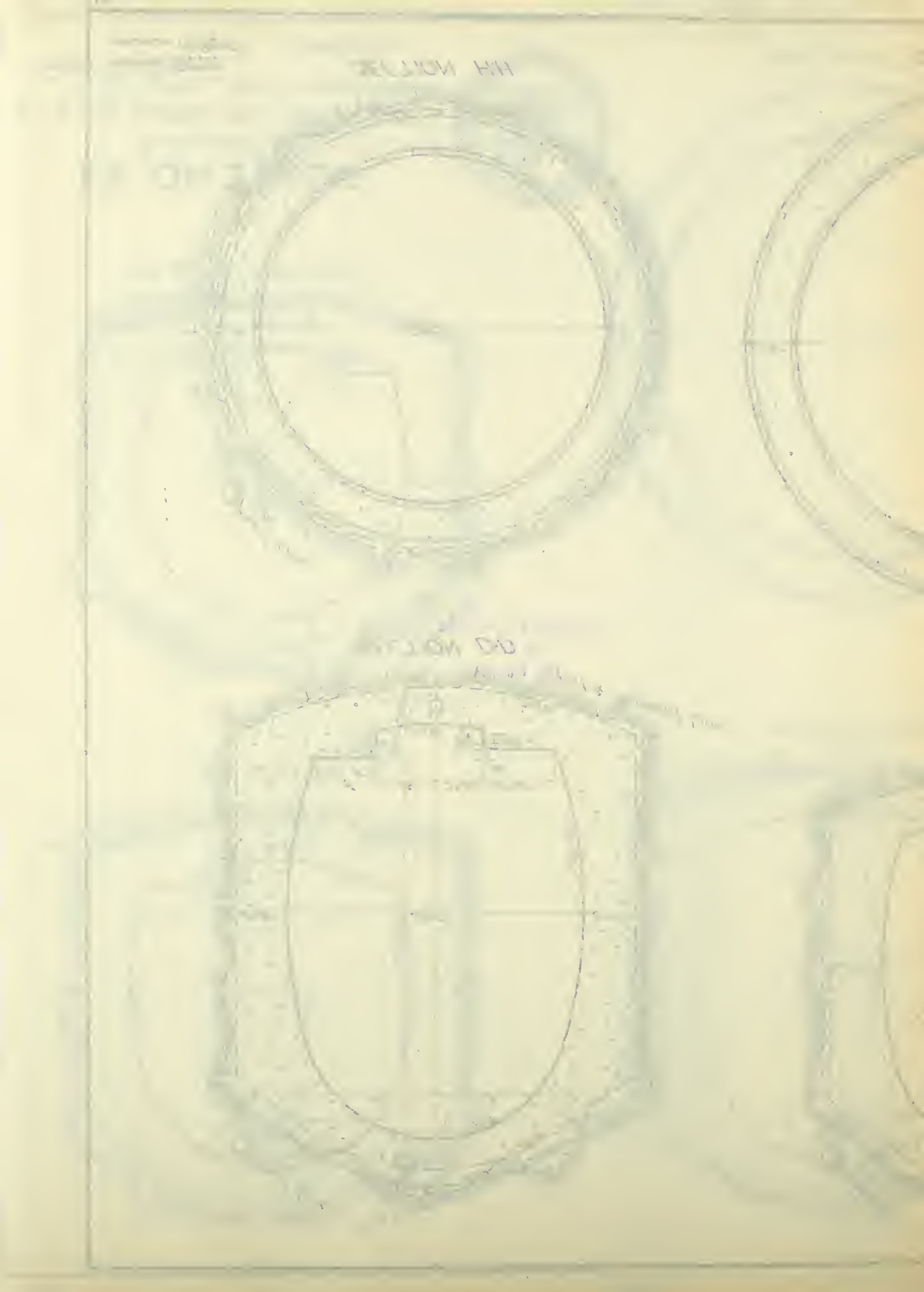
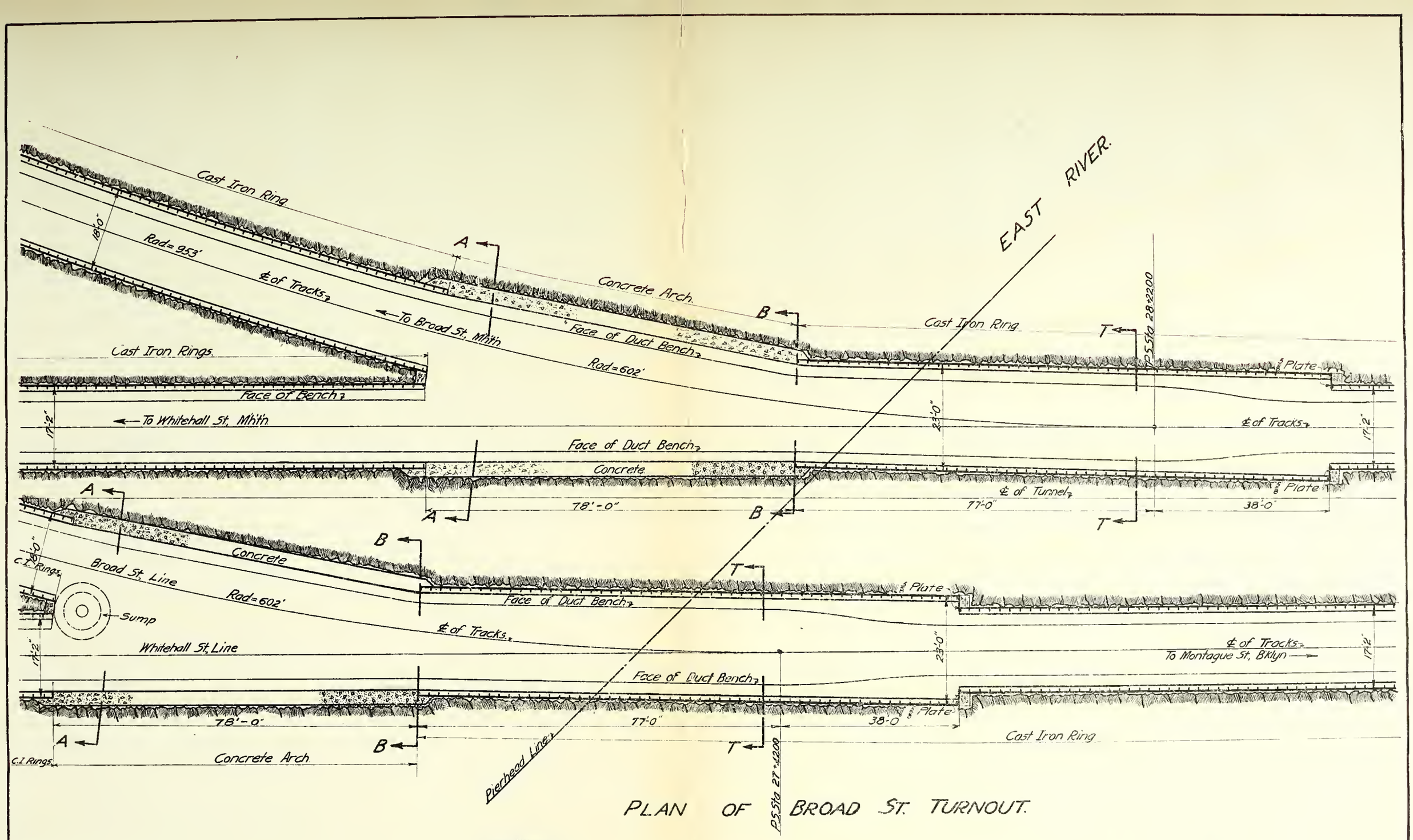





PLAN OF BROAD ST. TURNOUT.

REFERENCE NOTES

For Sections A-A & B-B see Drawing No. C-16
" Section T-T " " " C-6

DRAWN BY Cattano
CHECKED BY Nicholson

# ROUTE NO. 33

SECTION NO. 2

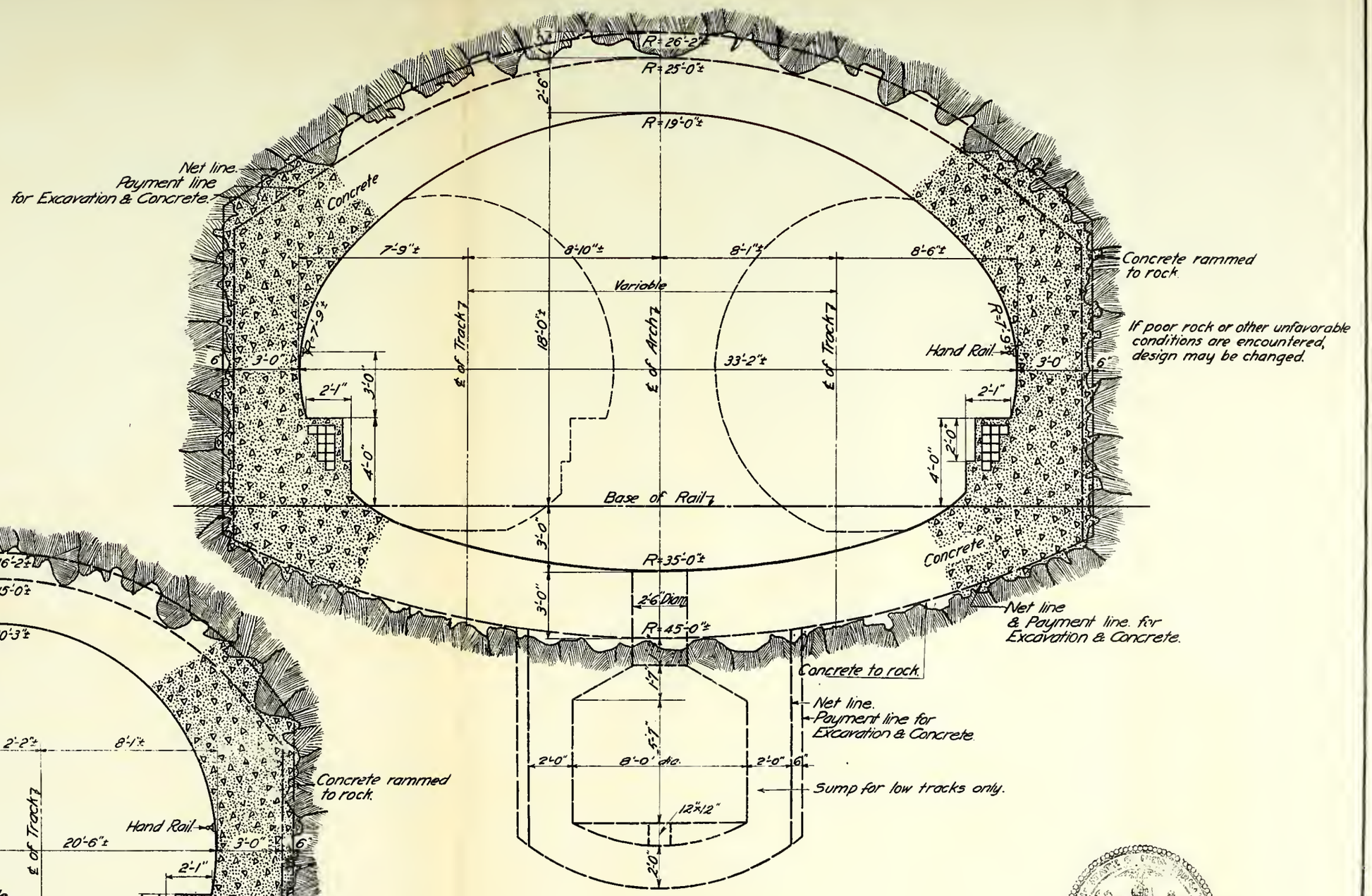
CONTRACT DRAWING NO. C-15

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE: 0 5 10 FEET

M.B. BROWN PRINTING & BINDING CO. N.Y.




DRAWN BY Cattano.
CHECKED BY Nicholson.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-16

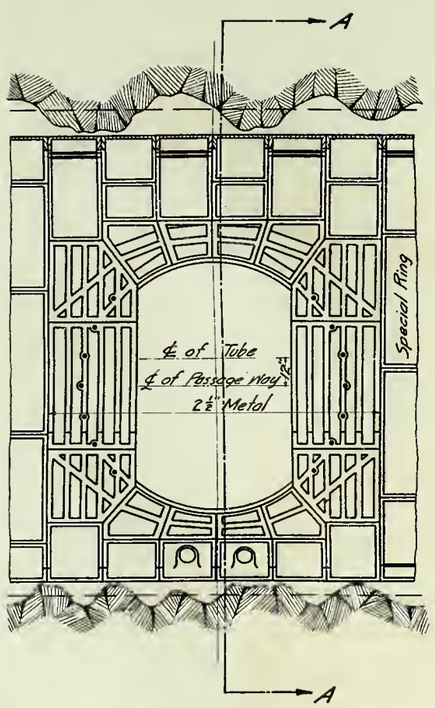
DATE MARCH 14, 1914

CHIEF ENGINEER

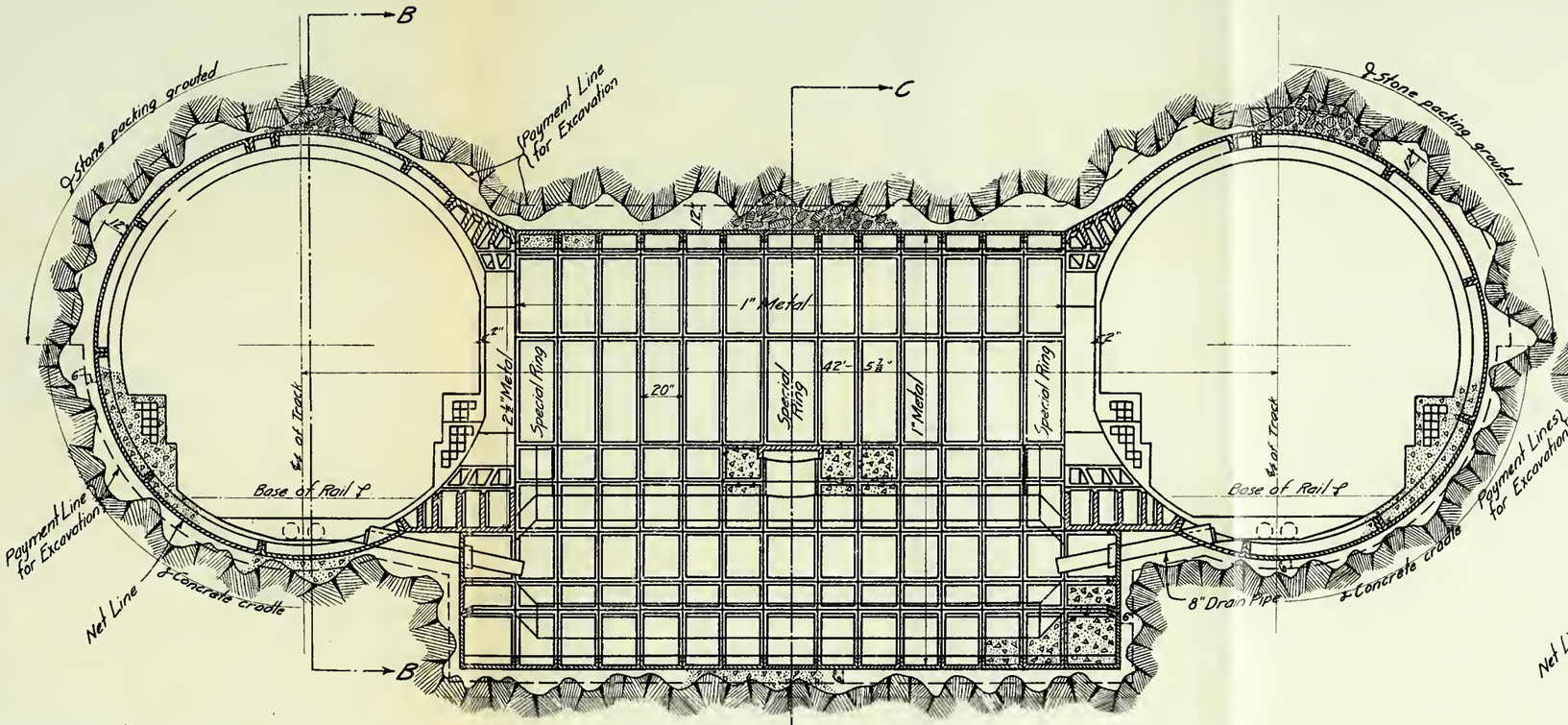
SCALE: 0 1 2 3 FEET

64469

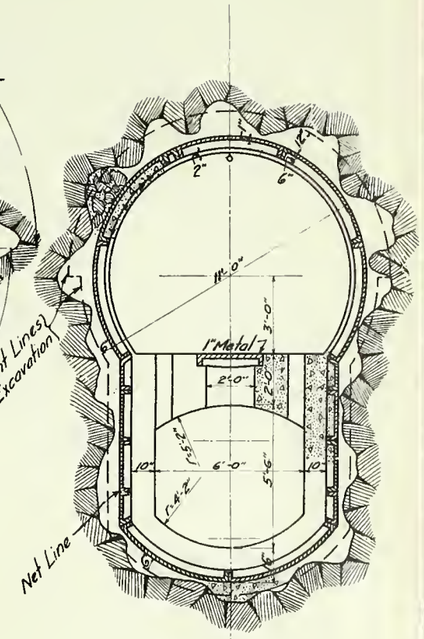
M.B BROWN PRINTING & BINDING CO. N.Y.




SECTION B-B




SECTION A-A




SECTION C-C

If poor rock or other unfavorable conditions are encountered, design may be changed.

SUMP AND PUMP CHAMBER.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-17

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 1 2 3 FEET

DRAWN BY N. Goldschlag

CHECKED BY C.M. Holland

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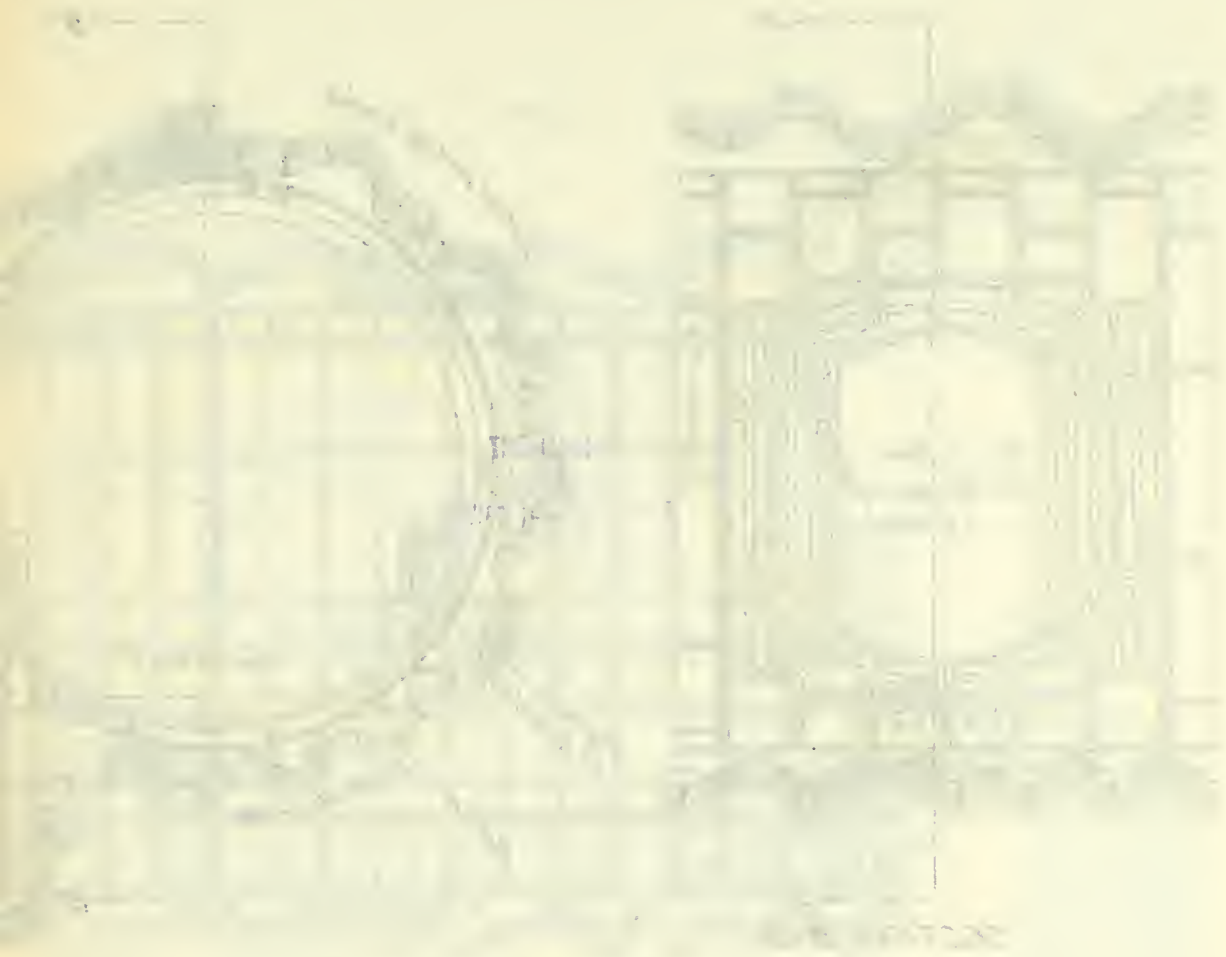
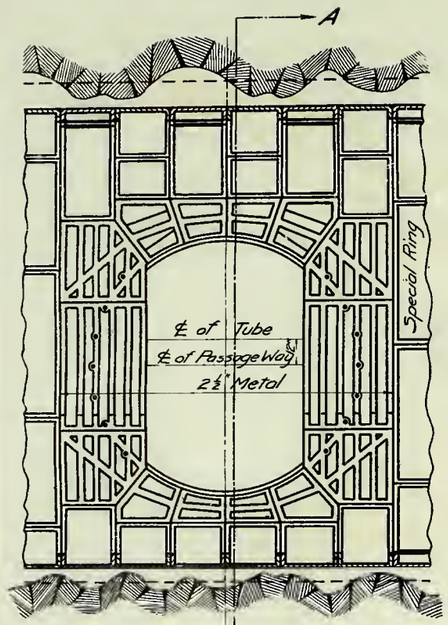
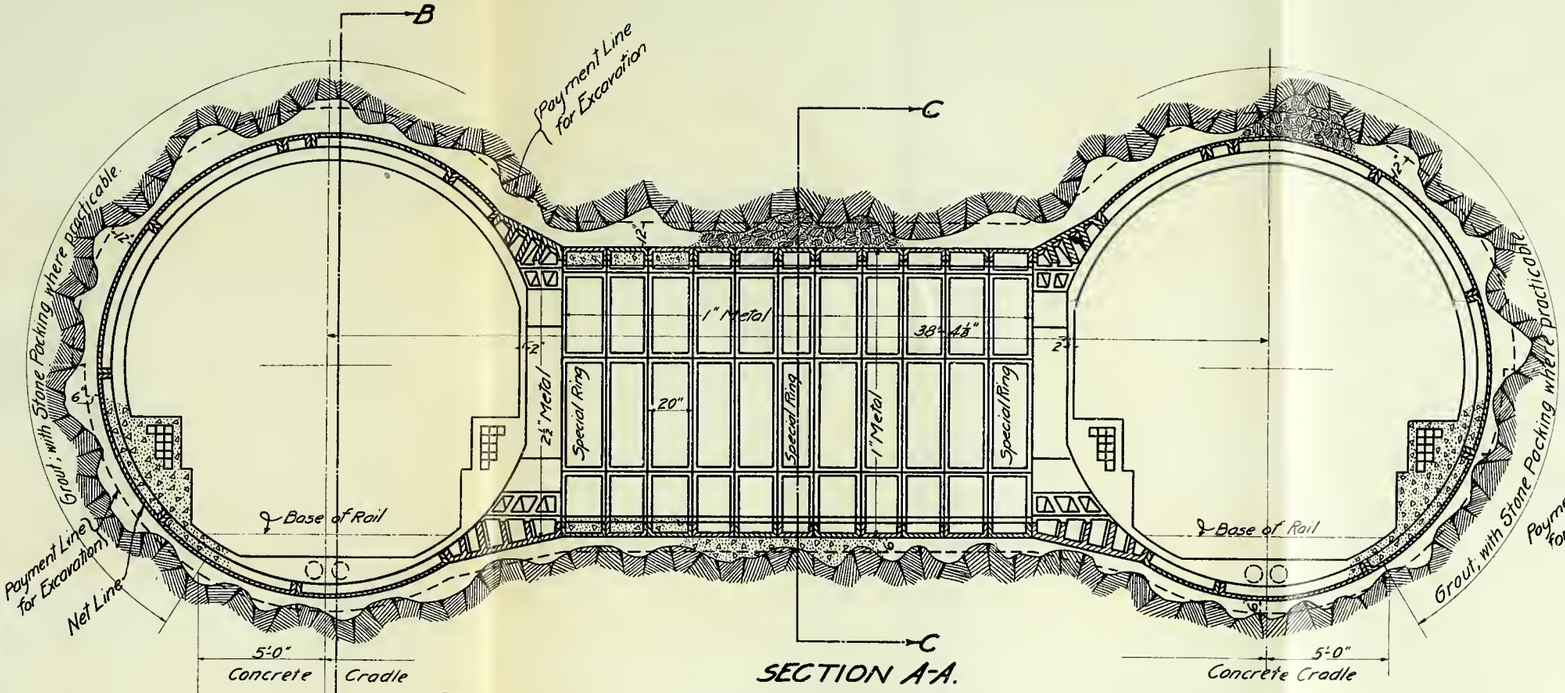
M.B. BROWN PRINTING & BINDING CO. N.Y.

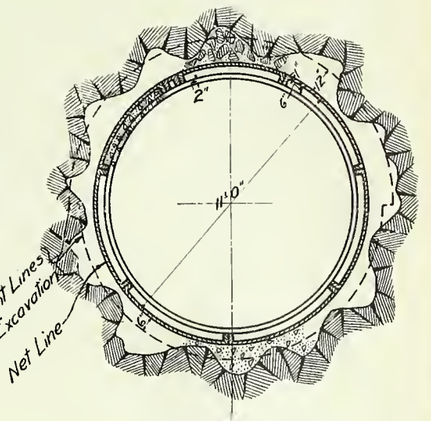





SECTION B-B.




SECTION A-A.
FEEDER CHAMBER.




SECTION C-C.

If poor rock or other unfavorable conditions are encountered, design may be changed.

DRAWN BY N. Goldschlag
CHECKED BY C.M. Holland

PUBLIC SERVICE COMMISSION FOR THE STATE OF NEW YORK

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-18

DATE MARCH 14, 1914. CHIEF ENGINEER

SCALE 1 0 1 2 3 FEET

64469

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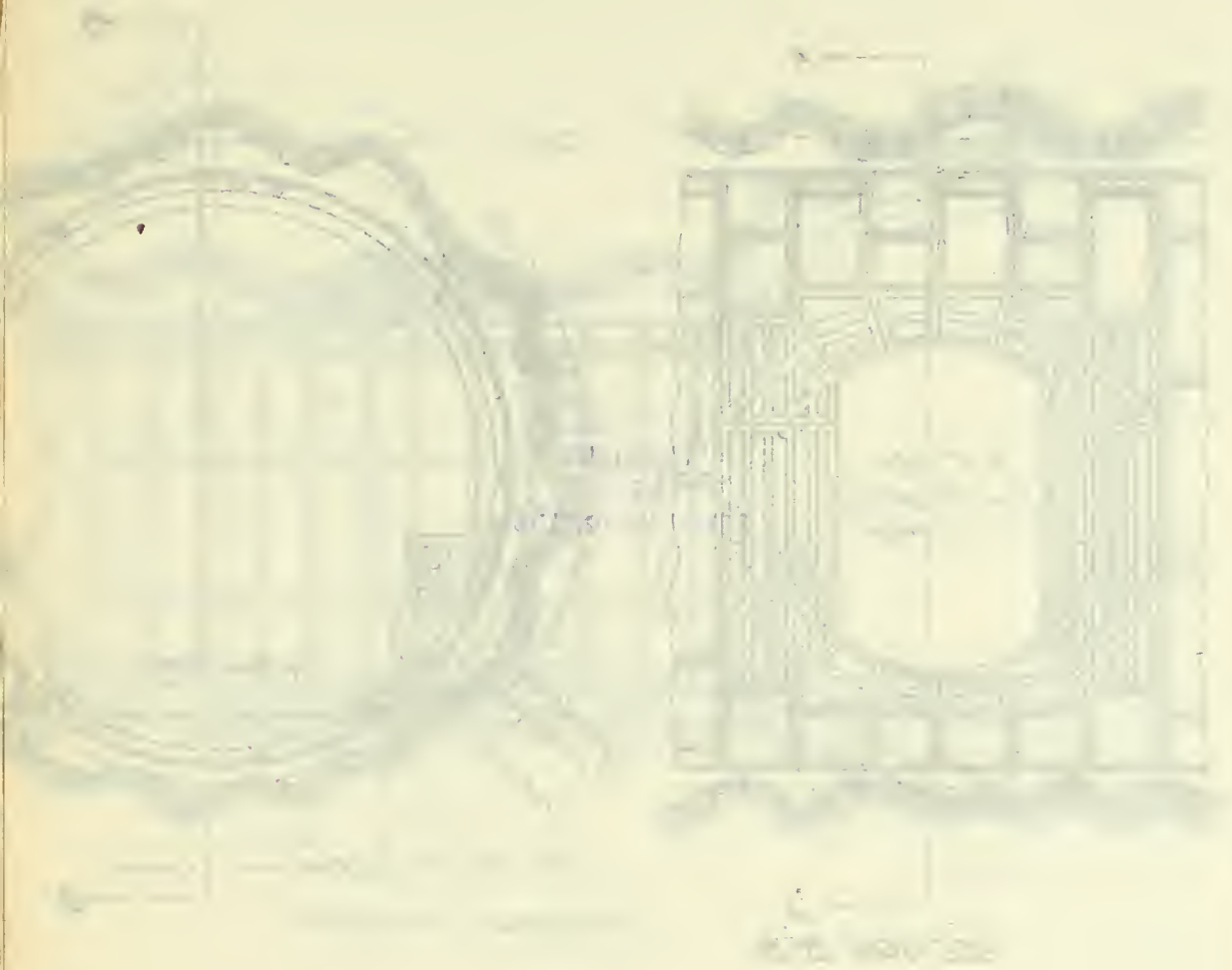

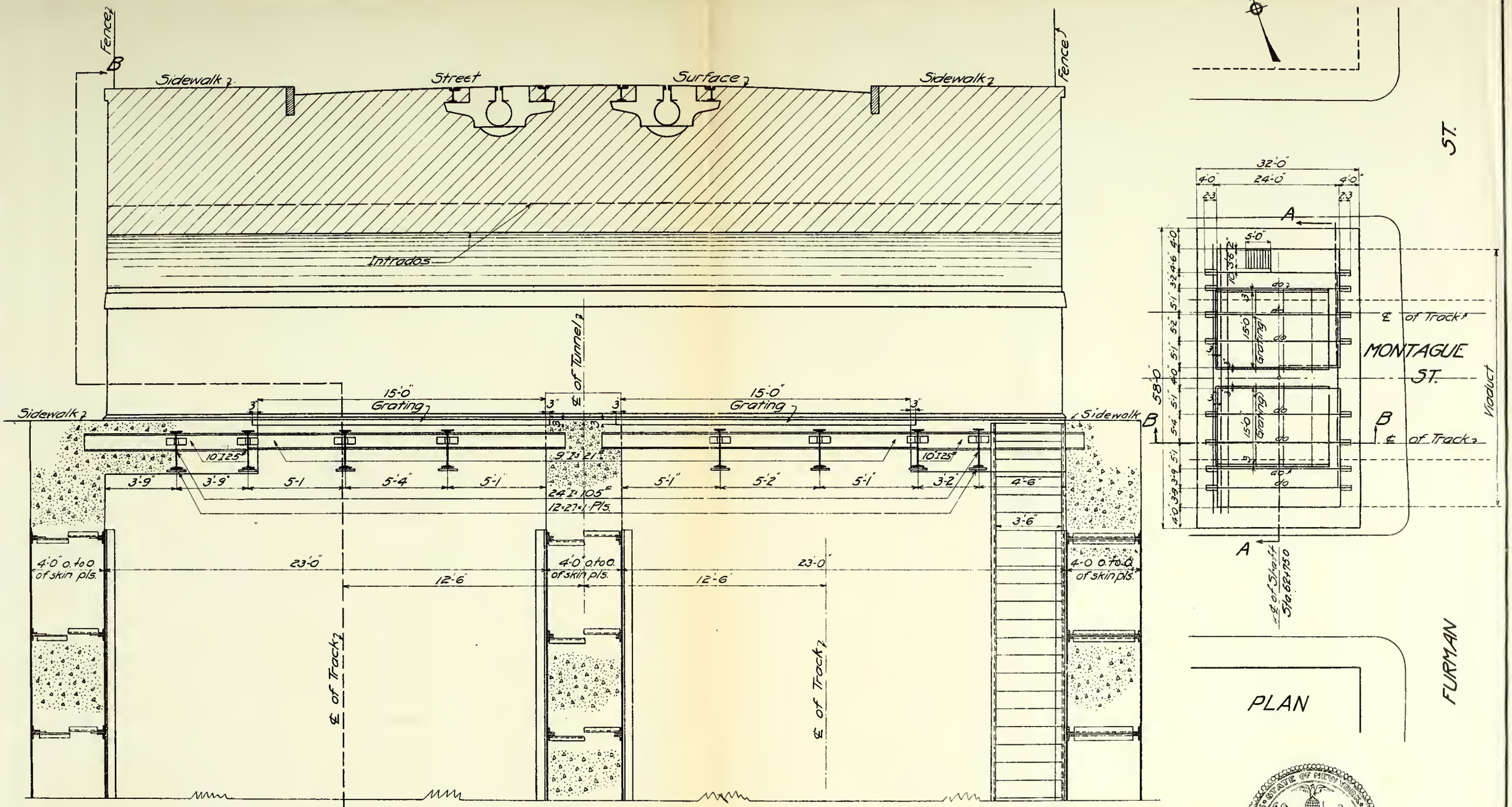


For part of section below this line see dwg No. C-20 **PART SECTION A-A**

## REFERENCE NOTES.

| | | |
|---|---|---|
| For Part Section A-A | see drawing No. | C-20 |
| " " B-B | " " | " C-21 |
| " Detail of main steel work | " drawings | " C-22 to C-31 |
| " " Skin Plates | | " C-32 to C-37 |

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-19

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALES: 0 5 10 FEET

0 1 2 3 FEET

DRAWN BY Titunik

CHECKED BY Cattano

64469

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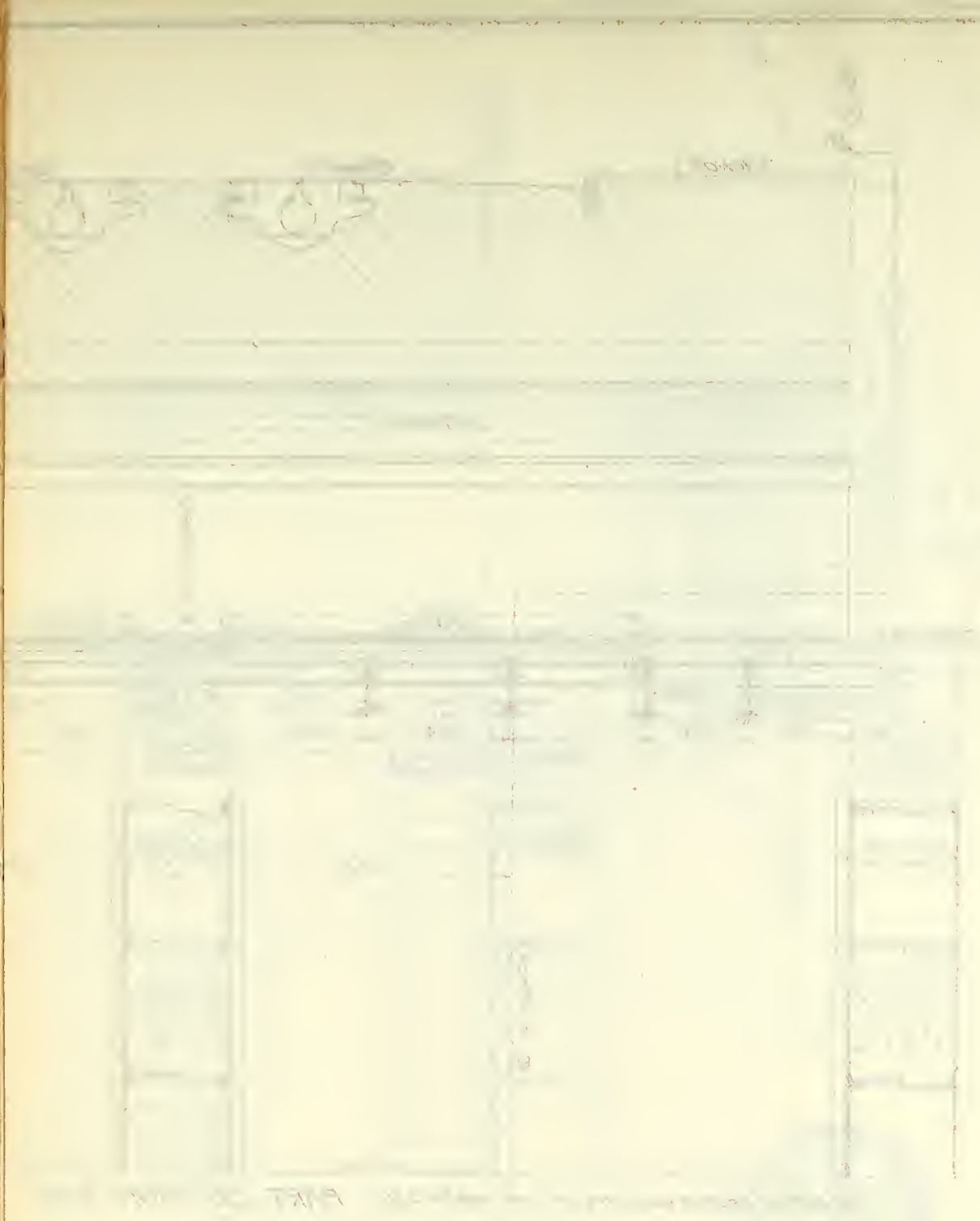

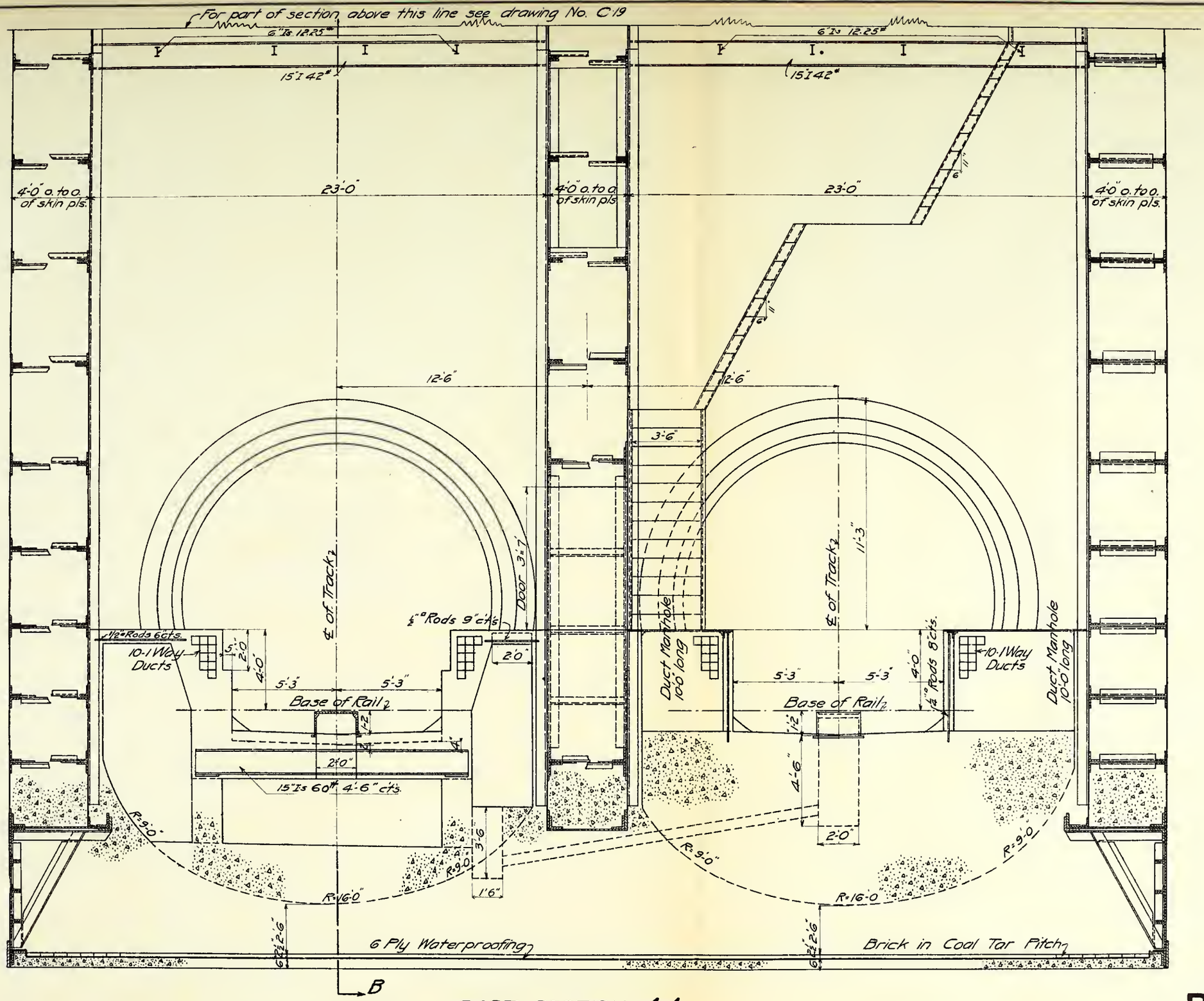


PART SECTION A-A

REFERENCE NOTES.

For Plan and Part Section A-A see drawing No. C-19
" " B-B " " " C-21
" Detail of main steel work " drawings " C-22 to C-31
" " " Skin Plates " " C-32 to C-37

DRAWN BY Titunik
CHECKED BY Gallano

64469

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-20

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 0 1 2 3 FEET

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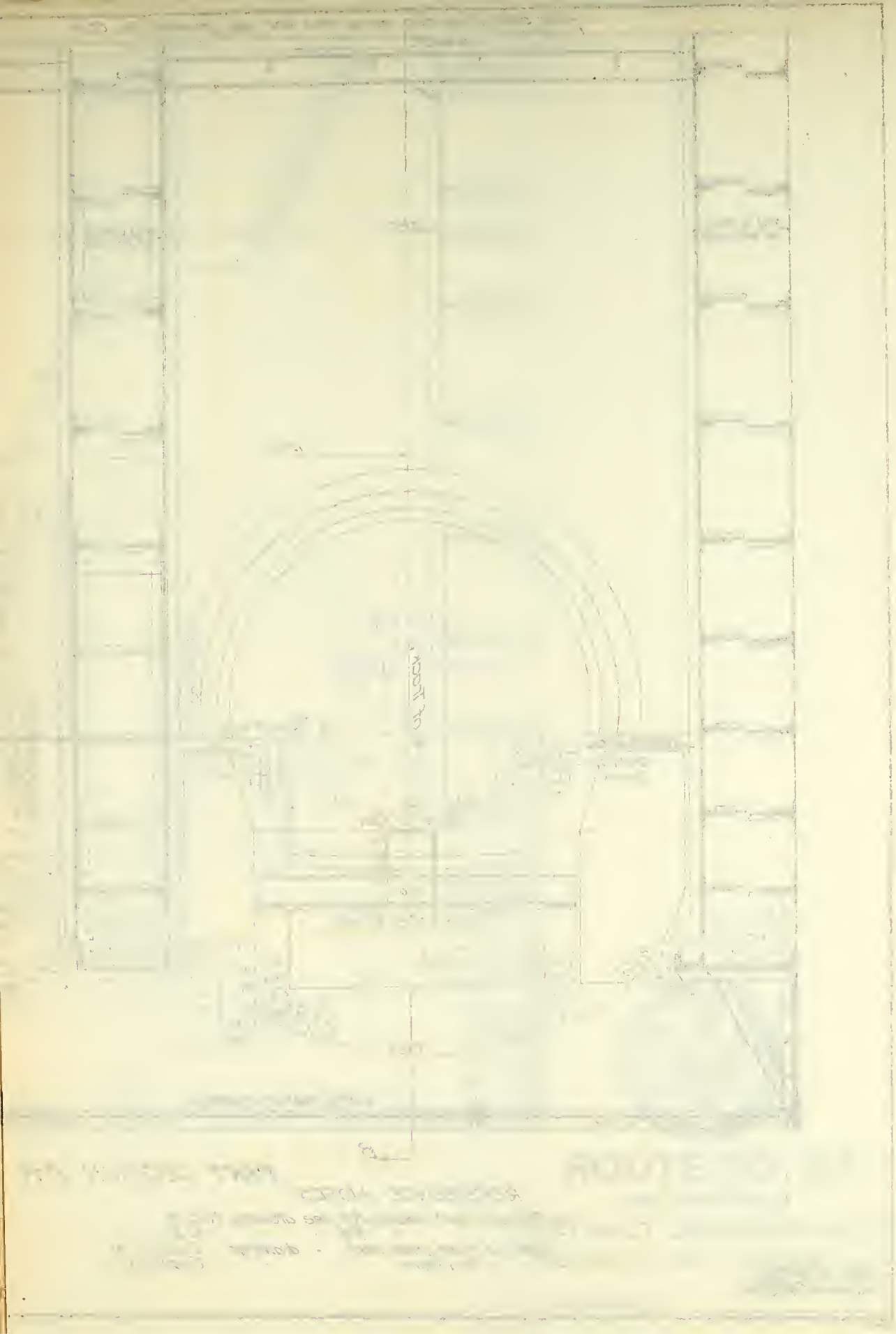

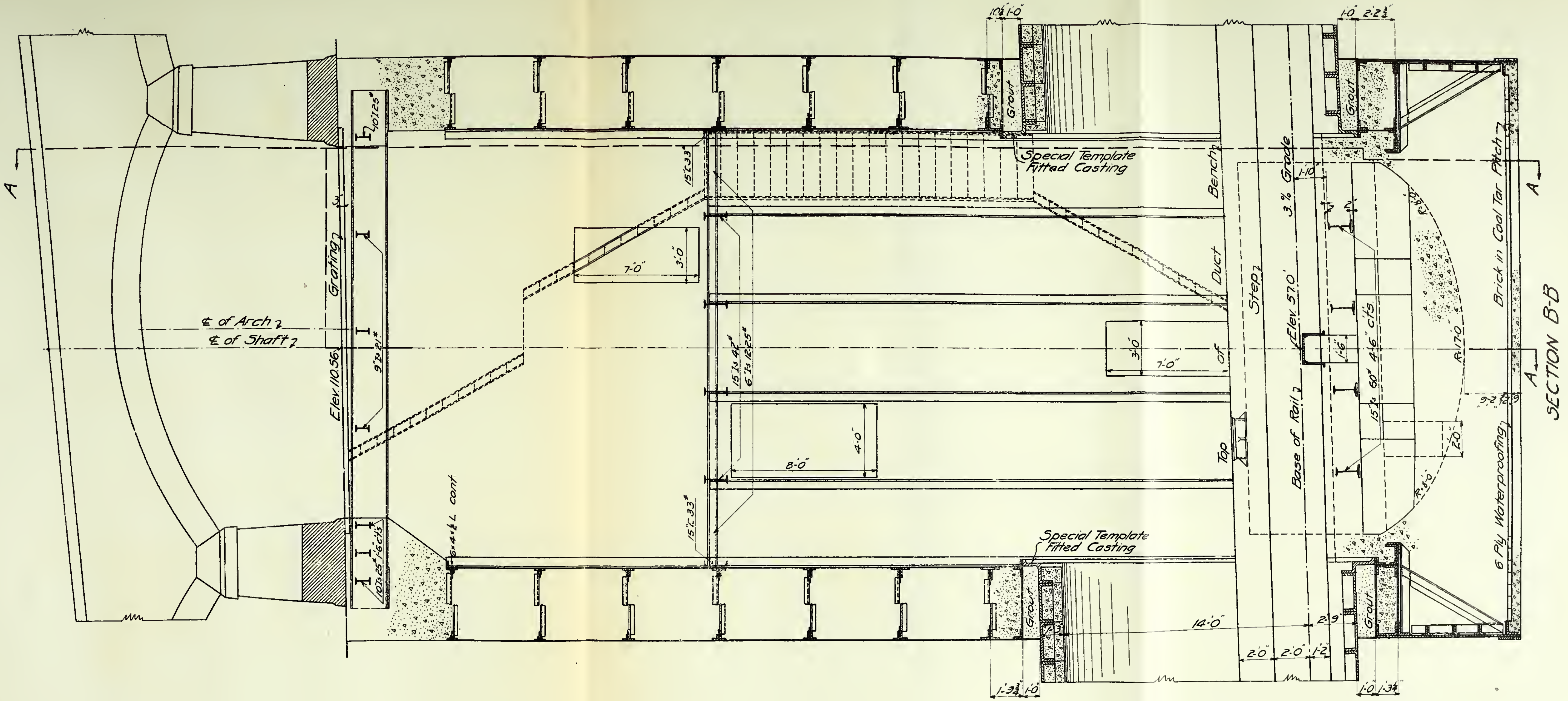


REFERENCE NOTES.

For Plan and Part Section A-A see drawing No C-19
" " " A-A " " C-20
" Detail of main steel work " drawings " C-22 to C-31
" " Skin Plates " " C-32 to C-37

DRAWN BY Titunik
CHECKED BY Caltagio

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-21

DATE MARCH 14, 1914

Alfred Craven
CHIEF ENGINEER

SCALE 0 1 2 3 FEET

64469

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EAST END

WEST END

SECTION C-C
ELEVATION NORTH SIDE WALL.
South Side Wall opposite hand.

NOTE: Skin plates not shown on elevation

## REFERENCE NOTES.

For Plan and finished structure see drawings No. C-19 to C-21
" Part Section E-E " drawing " C-24
" " " E-E " " " C-25
" " " H-H " " " C-26
" " " J-J " " " C-27
" Sections M-M & N-N " " " C-28
" " K-K & O-O " " " C-29
" " P-P, R-R, S-S, T-T, V-V, W-W & X-X see dwg " C-30
" Schedule showing sizes of members " " " C-31
" Detail of Skin Plates see drawings " C-32 to C-37

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-22

DATE MARCH 14, 1914

Alfred Craven
CHIEF ENGINEER

SCALE 0 1 2 3 FEET

DRAWN BY Nicholson
CHECKED BY Finkelstein

64469

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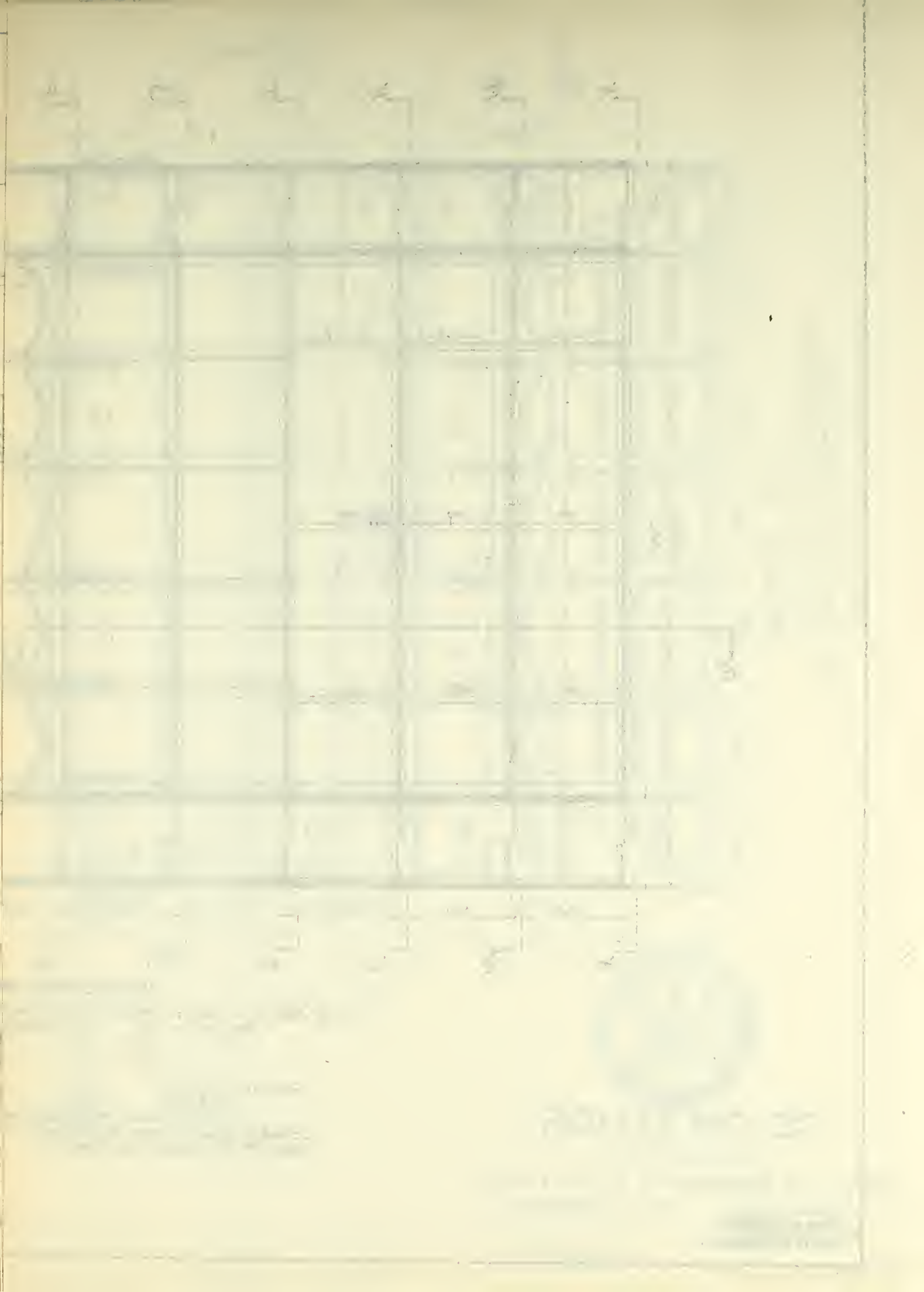
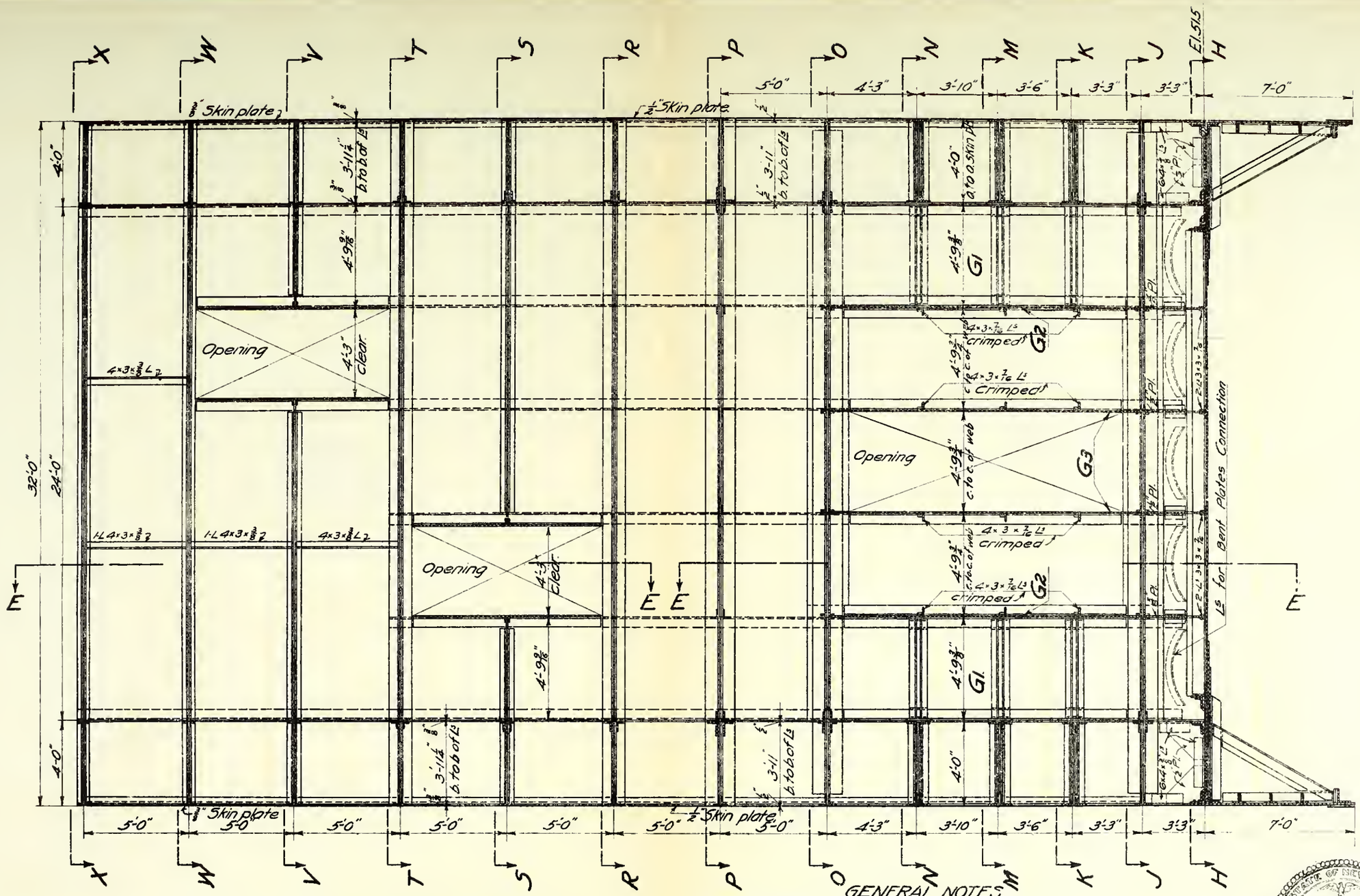





SECTION D-D.
ELEVATION THROUGH CENTRE WALL.

## REFERENCE NOTES.

For Plan and finished structure see drawings No. C-19 to C-21
" Part Section E-E " drawing " C-24
" " " F-F " " " C-25
" " " H-H " " " C-26
" " " J-J " " " C-27
" Sections M-M & N-N " " " C-28
" " K-K & O-O " " " C-29
" " P-P, R-R, S-S, T-T, V-V, W-W & X-X see dwg " C-30
" Schedule showing sizes of members " " " C-31
" Detail of Skin Plates see drawings " C-32 to C-37

## GENERAL NOTES.

The exterior skin-plates shall be caulked from bottom to top. The interior skin-plates including both sides of the skin-plates of the central cross wall shall be caulked below the upper position of the air tight chamber roof. The caulking shall be watertight where it will be exposed to water pressure only, and airtight where it will be exposed to air pressure during the sinking of the shaft and construction of tunnels.

All openings that cannot be made watertight by caulking are to be plugged with metal plugs and made watertight.

The Bulkheads closing the shield openings and the cross wall openings, and the roofs of the working chambers, will not form part of the completed work, and will be considered plant.

Grout holes in steel to be provided as required.

Rivet Spacing in caulked work shall not exceed 4 inches

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-23

DATE MARCH 14, 1914

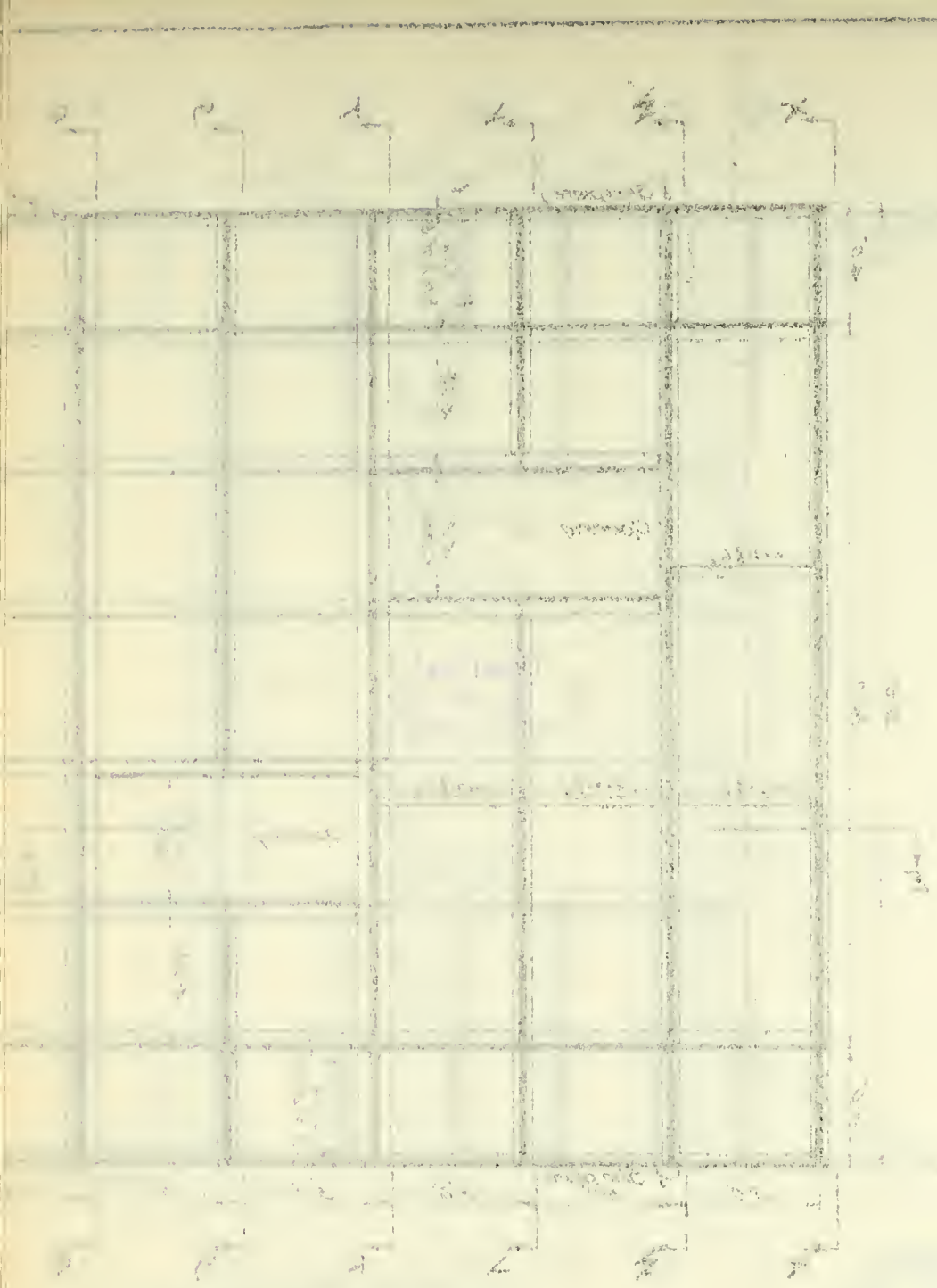
CHIEF ENGINEER

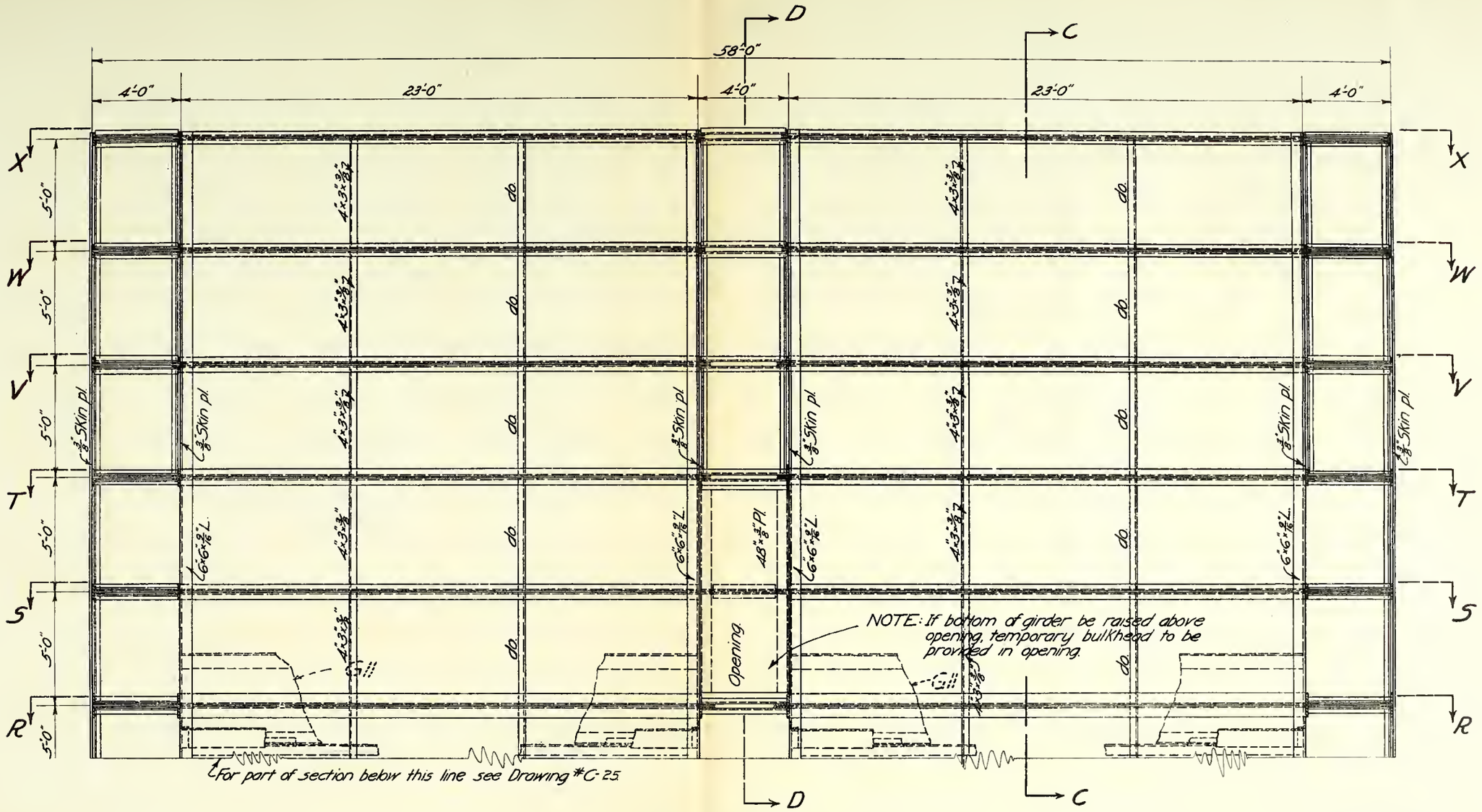
SCALE 0 1 2 3 FEET

DRAWN BY Booth
CHECKED BY Finkelstein

64469

M.B. BROWN PRINTING & BINDING CO. N.Y.






# PART SECTION E-E.

## ELEVATION WEST END WALL.

NOTE: Skin plates not shown in elevation.

## REFERENCE NOTES.

For Plan and finished structure see drawings No. C-19 to C-21
" Section C-C " drawing " C-22
" " D-D " " " C-23
" Sections R-R, S-S, T-T, V-V, W-W & X-X see dwg. " C-30
" Schedule showing sizes of members " " " C-31
" Detail of Skin Plates see drawings " C-32 to C-37

DRAWN BY Gattano
CHECKED BY Finkelstein

64463

STATE OF NEW YORK · PUBLIC SERVICE COMMISSION FIRST DISTRICT

# ROUTE NO. 33

SECTION NO. 2

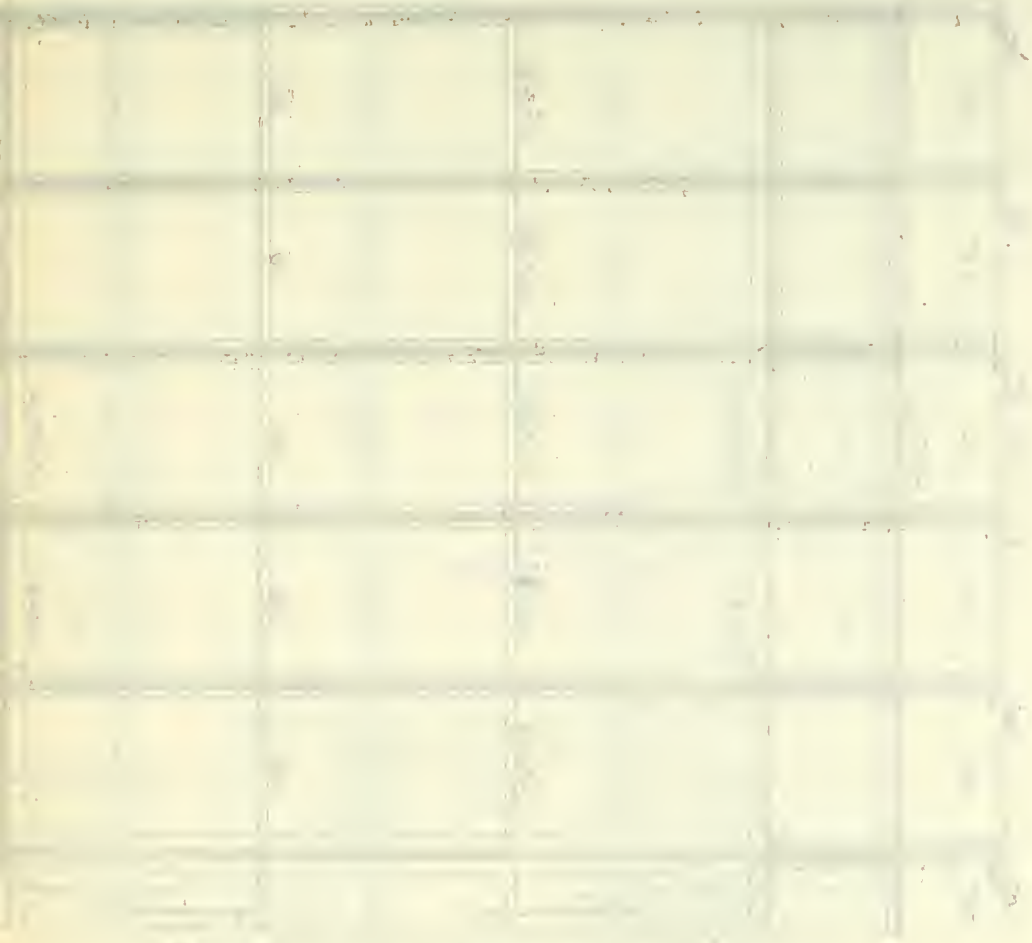
CONTRACT DRAWING NO. C-24

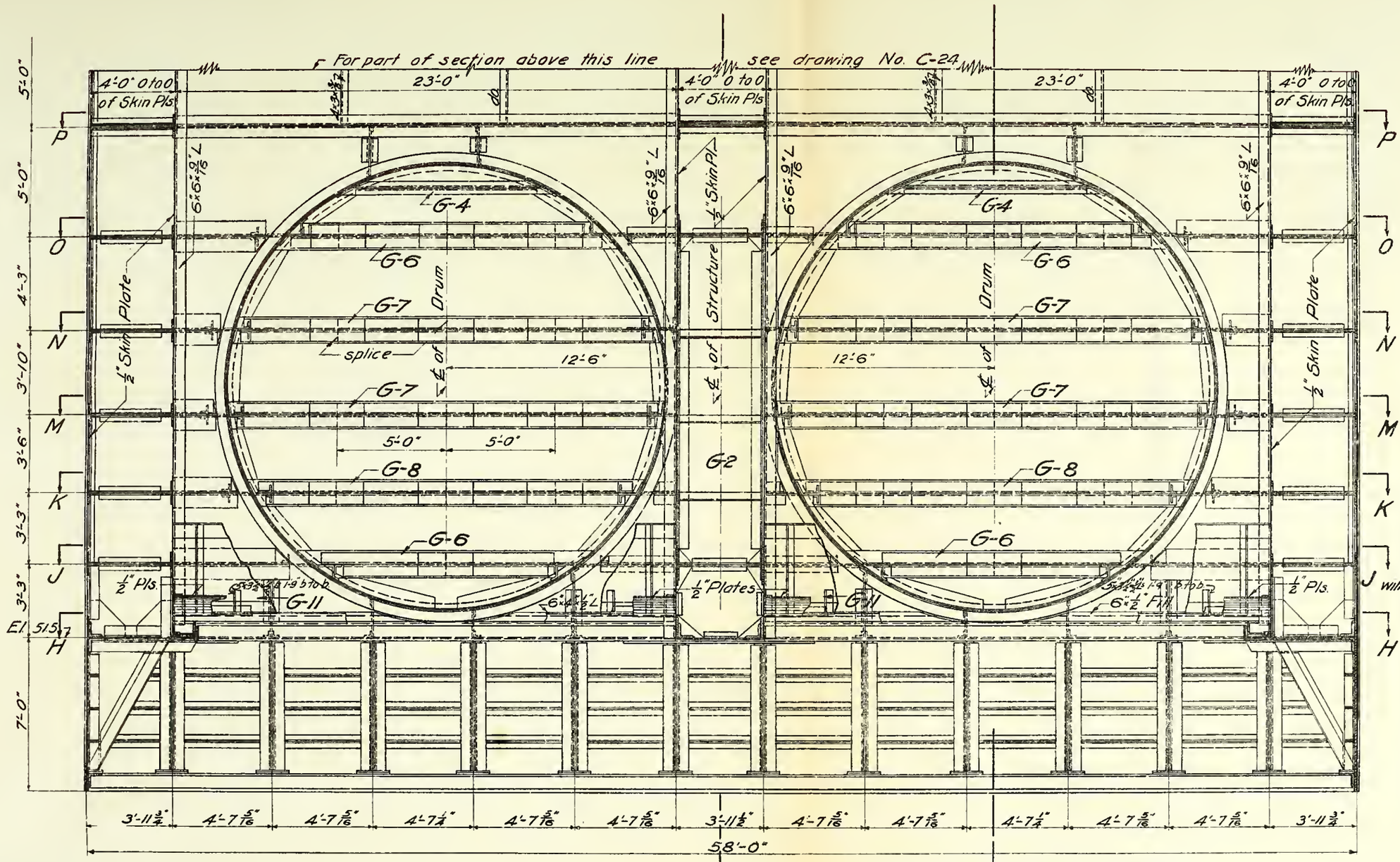
DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 0 1 2 3 FEET

M.B. BROWN PRINTING & BINDING CO. N.Y.






NOTE: Skin plates not shown in elevation.

## PART SECTION E-E.

## ELEVATION WEST END WALL.

### REFERENCE NOTES.

For Plan and finished structure see drawings No. C-19 to C-21
" Section C-C " drawing " C-22
" " D-D " " " C-23
" " H-H " " " C-26
" " J-J " " " C-27

For Sections M-M & N-N see drawing No. C-28
" " K-K & O-O " " C-29
" Section P-P " " C-30
" Schedule showing sizes of members " " C-31
" Detail of Skin Plates " drawings " C-32 to C-37

### GENERAL NOTES.

The exterior skin-plates shall be caulked from bottom to top. The interior skin-plates, including both sides of the skin-plates of the central cross wall, shall be caulked below the upper position of the airtight chamber roof. The caulking shall be watertight where it will be exposed to water pressure only, and airtight where it will be exposed to air pressure during the sinking of the shaft and construction of tunnels.

All openings that cannot be made watertight by caulking, are to be plugged with metal plugs and made watertight.

The Bulkheads closing the shield openings and the cross wall openings, and the roofs of the working chambers, will not form part of the completed work, and will be considered plant.

Grout holes in steel to be provided as required.

Rivet spacing in caulked work shall not exceed 4 inches.

# ROUTE NO. 33

SECTION NO. 2

## CONTRACT DRAWING NO. C-25

DATE MARCH 14, 1914

CHIEF ENGINEER

DRAWN BY Cattano
CHECKED BY Finklestein

SCALE 0 1 2 3 FEET

64469

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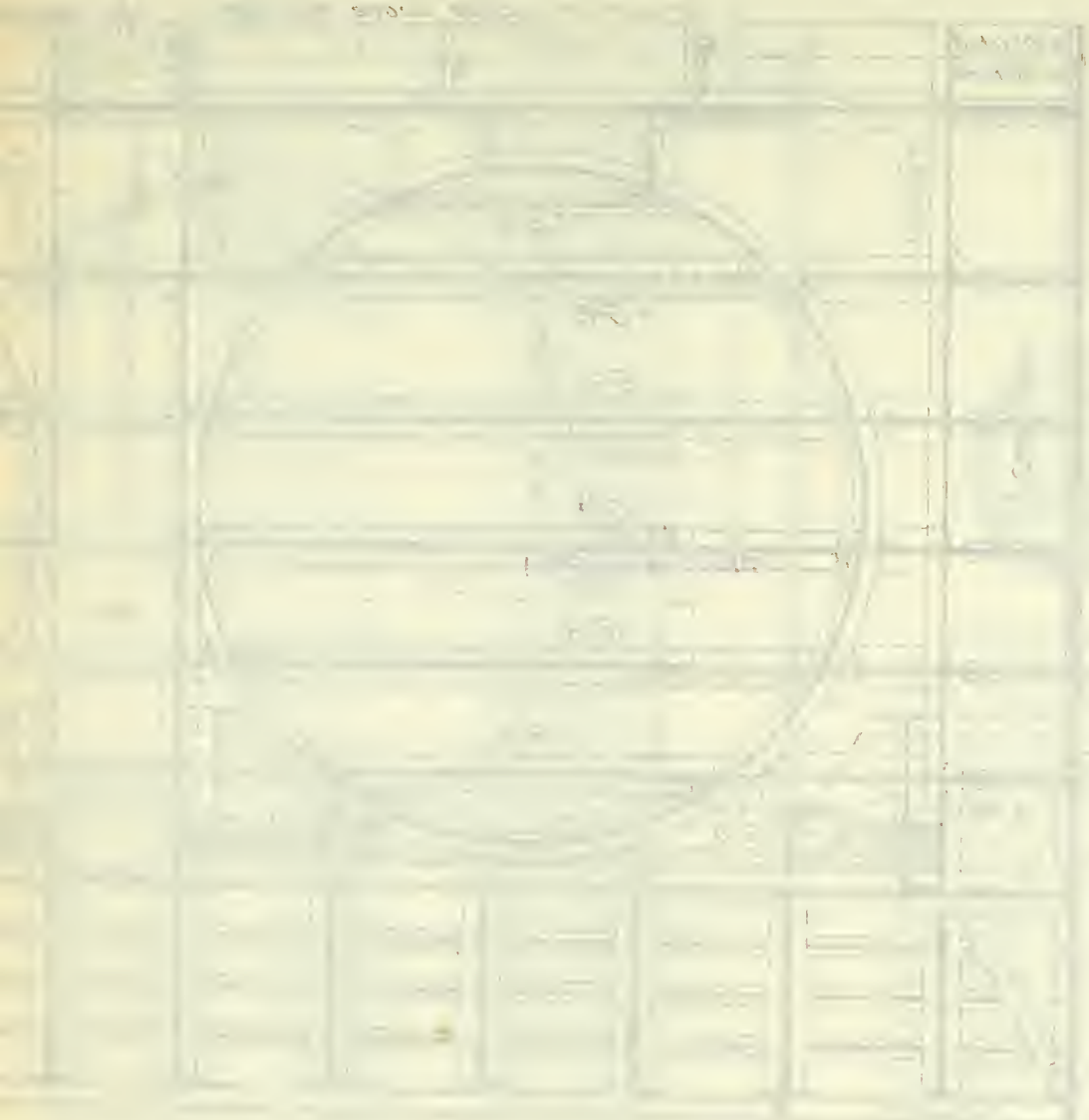
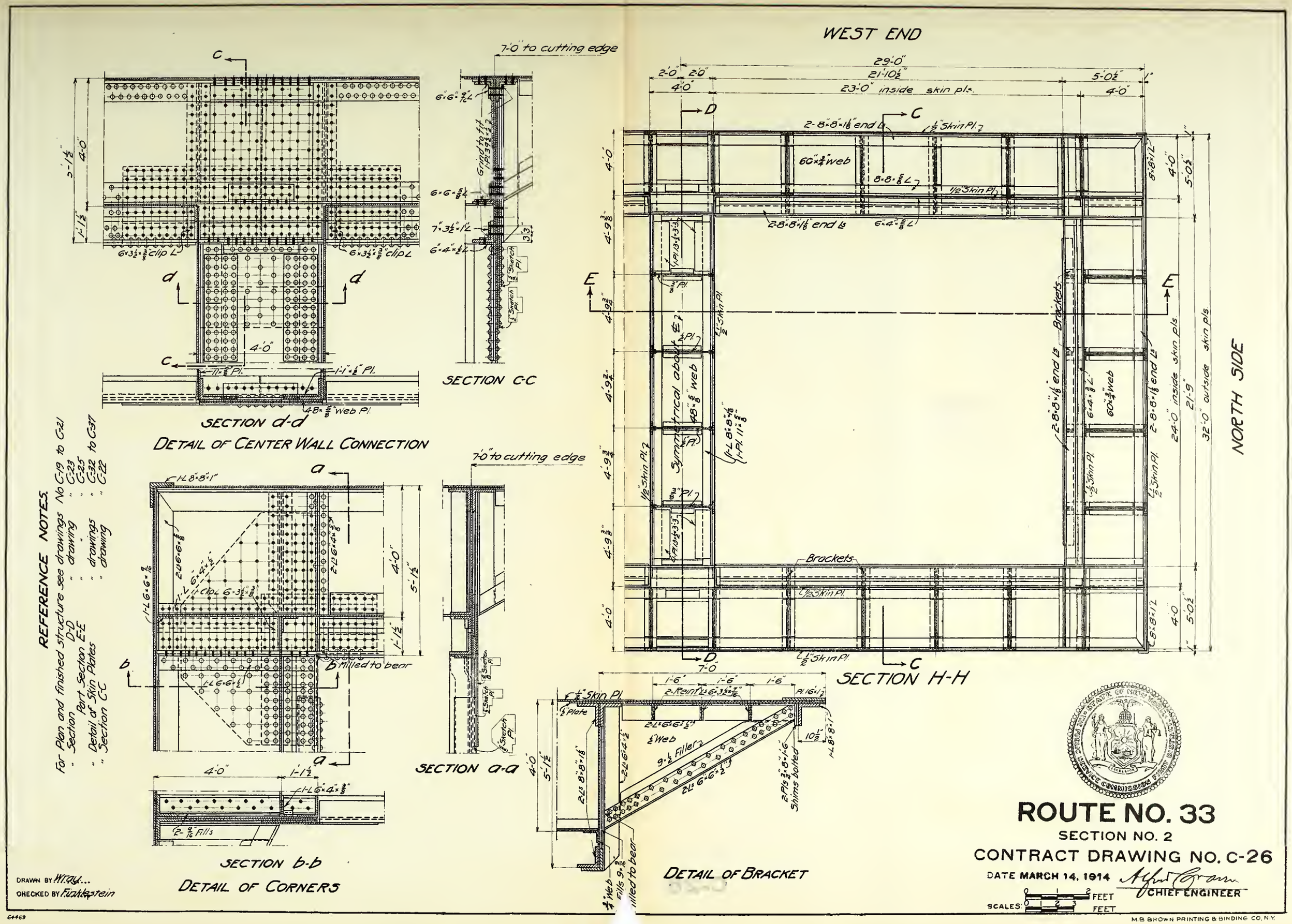
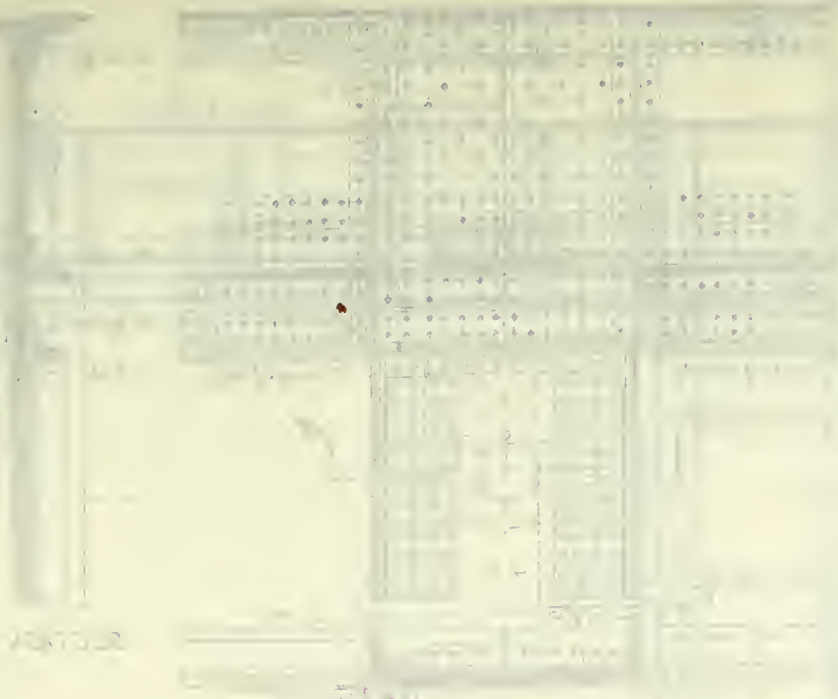
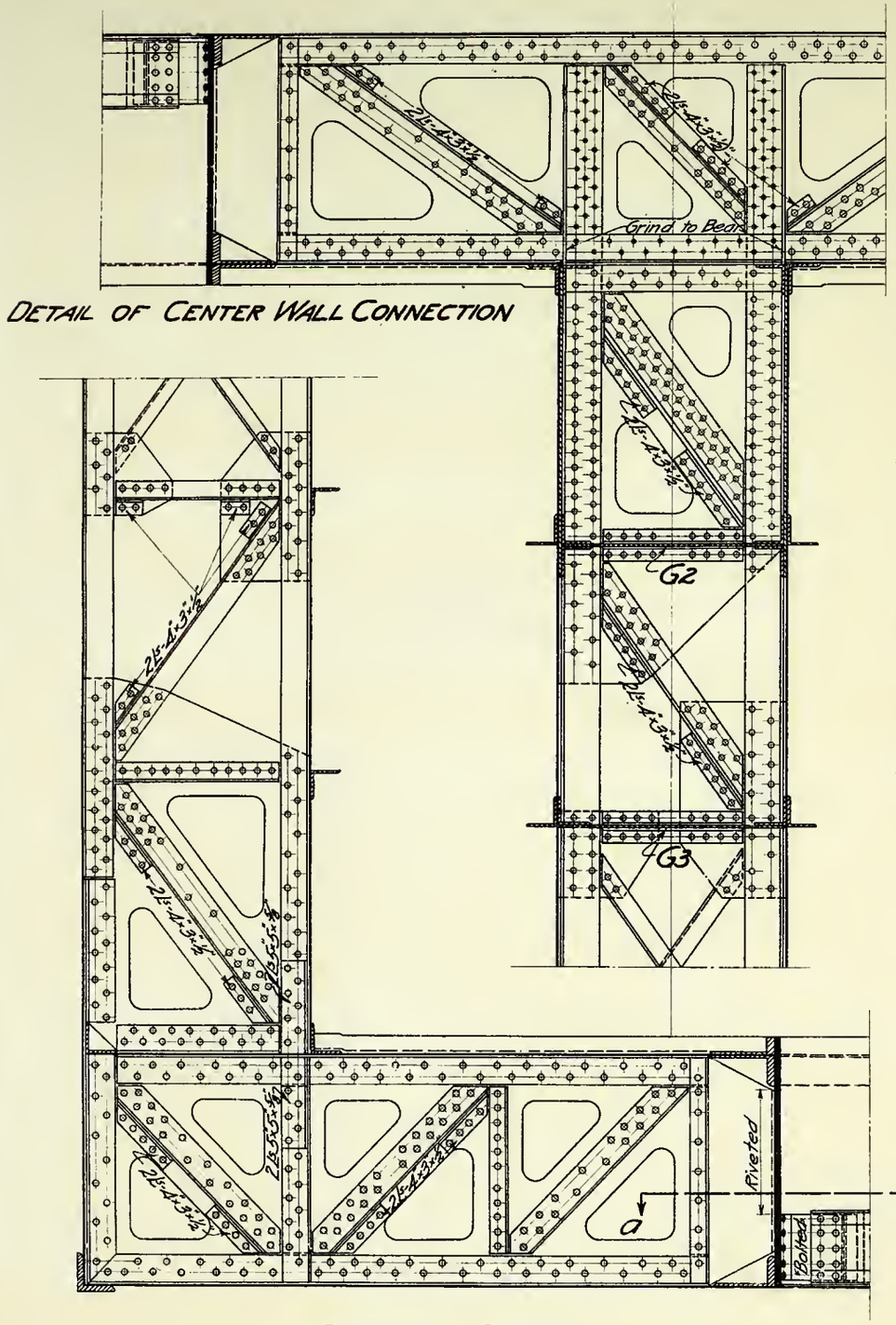



WEST END
NORTH SIDE
SECTION H-H
SECTION C-C
SECTION d-d
DETAIL OF CENTER WALL CONNECTION
SECTION a-a
SECTION b-b
DETAIL OF CORNERS
DETAIL OF BRACKET
REFERENCE NOTES.
For Plan and finished structure see drawings No C-19 to C-21
" Section D-D " drawing " C-23
Part Section E-E " " " C-25
" Detail of Skin Plates " drawings " C-32 to C-37
" Section C-C " drawing " C-22
7'-0" to cutting edge
29'-0"
21'-10½"
23'-0" inside skin pls.
24'-0" inside skin pls.
32'-0" outside skin pls.
Symmetrical about ℄
Brackets
Milled to bear
Shims bolted
DRAWN BY Wray
CHECKED BY Finklestein
ROUTE NO. 33
SECTION NO. 2
CONTRACT DRAWING NO. C-26
DATE MARCH 14, 1914
CHIEF ENGINEER
SCALES
FEET
M.B. BROWN PRINTING & BINDING CO. N.Y.

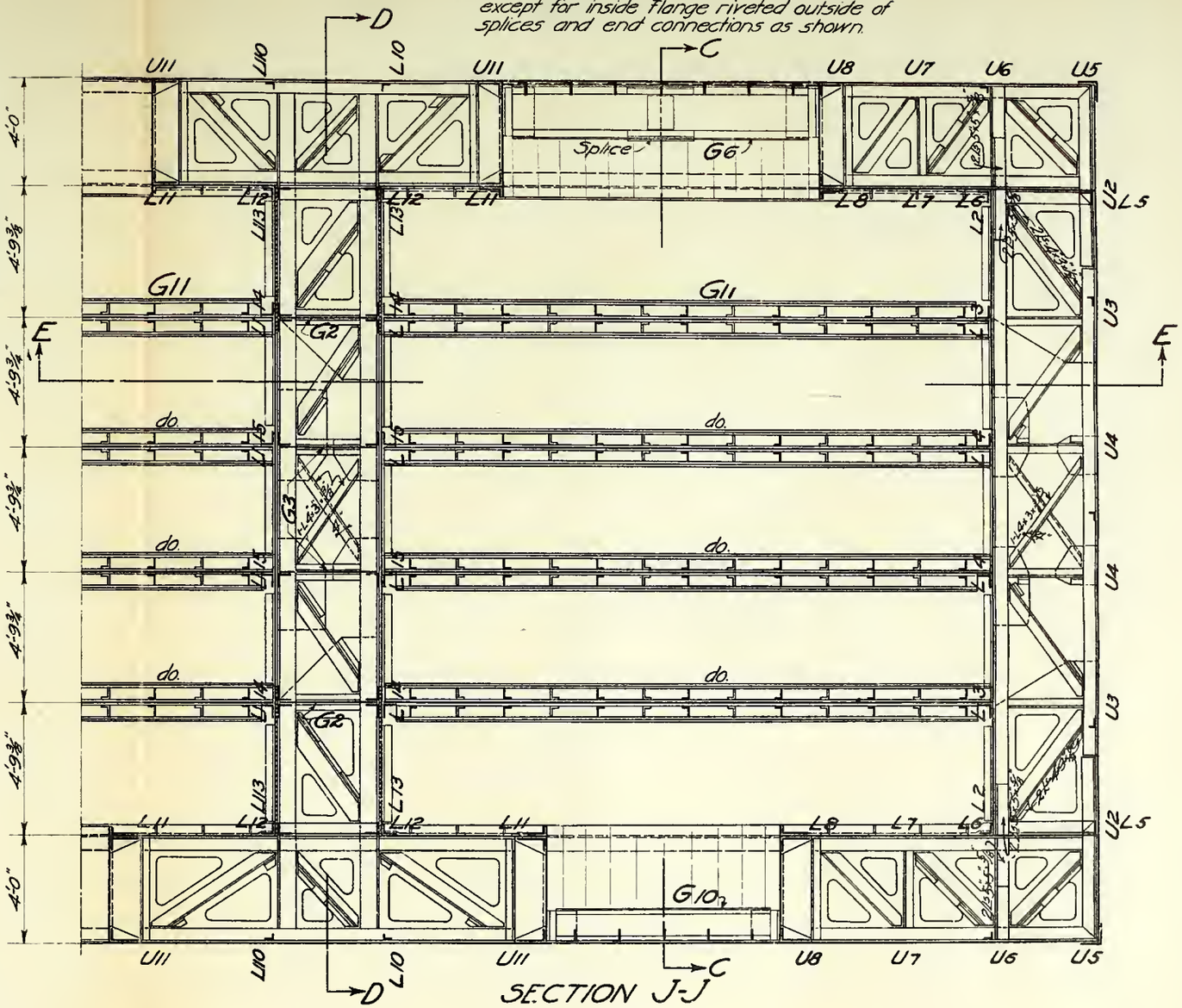


Note: All connections of girder members bolted except for inside flange riveted outside of splices and end connections as shown.

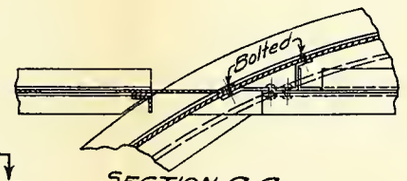



DETAIL OF CENTER WALL CONNECTION

DETAIL OF CORNERS




SECTION J-J




SECTION a-a

Note:- ½" Gusset Plates.
Rivets - ⅞" diam.

REFERENCE NOTES.

For Plan and finished structure see drawings No. C-19 to C-21
" Section D-D " drawing " C-23
" Part E-E " " " C-25
" Schedule showing sizes of members see dwg. " C-31
" Detail of Skin Plates see drawings " C-32 to C-37
" Section C-C " " C-22

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-27

DATE MARCH 14, 1914

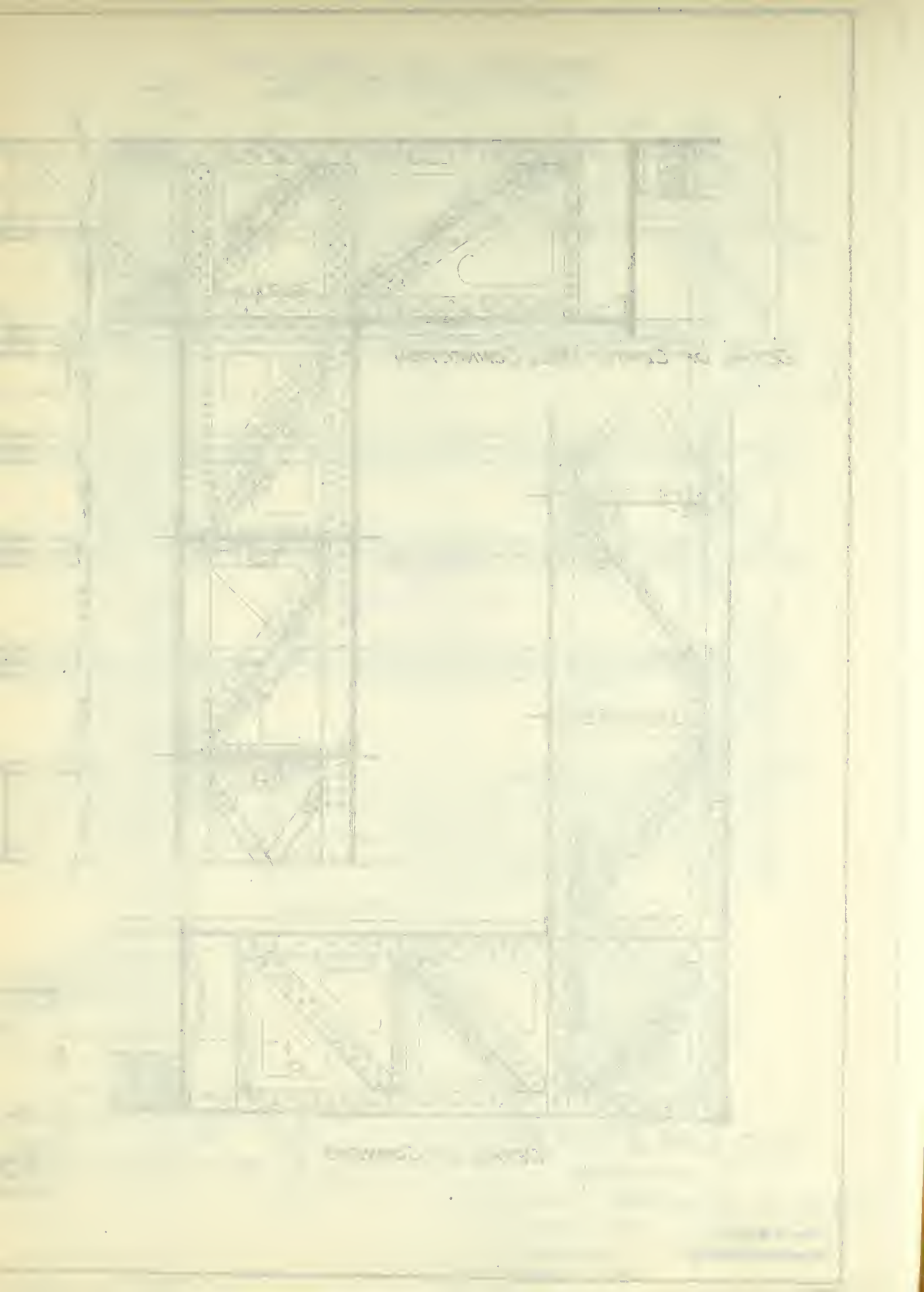
Alfred Graves
CHIEF ENGINEER

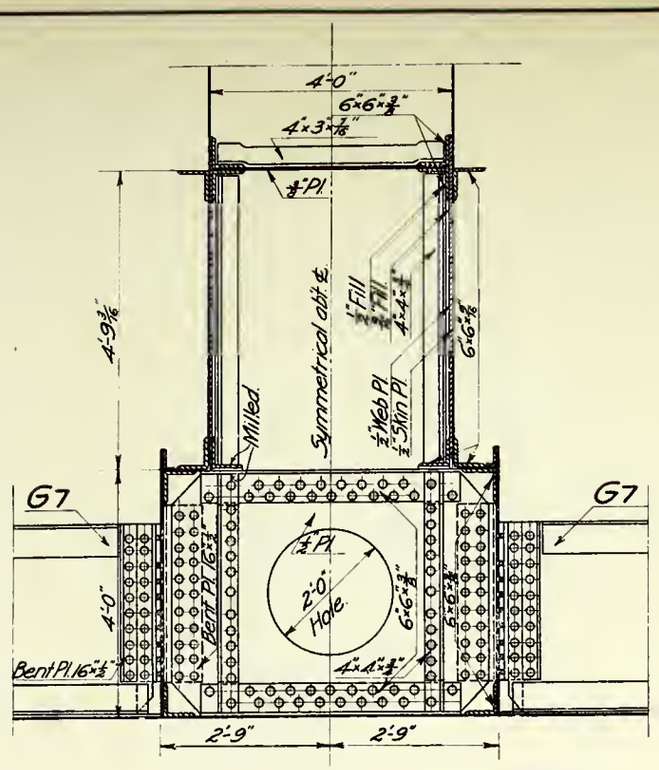
SCALE 0 1 2 FEET
0 1 2 3 FEET

DRAWN BY Wray...
CHECKED BY Finkelstein

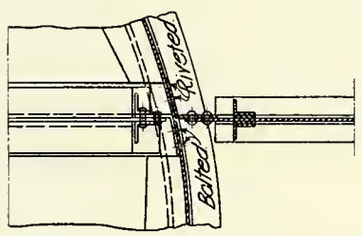
69469

M.B BROWN PRINTING & BINDING CO, N.Y.

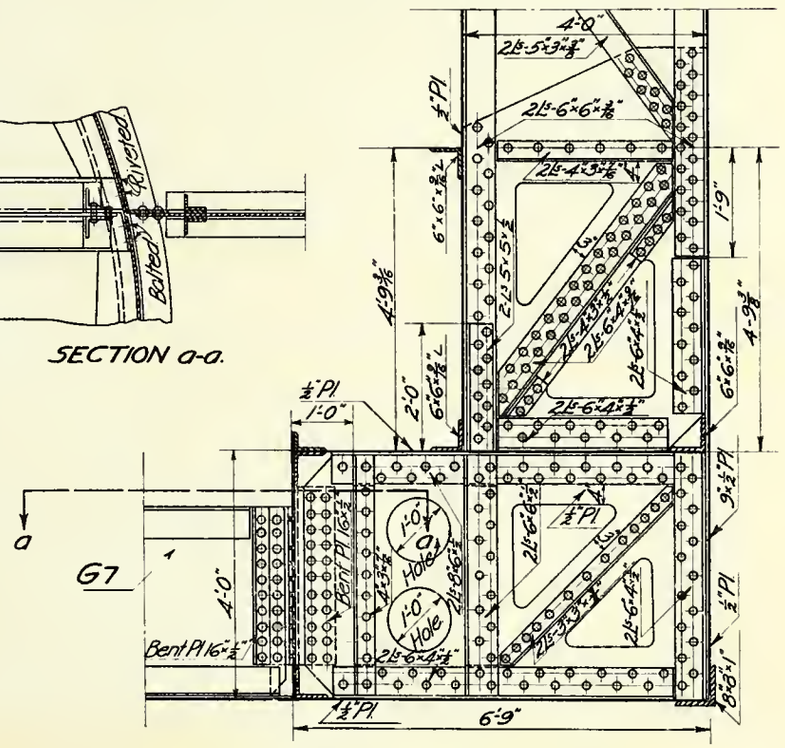




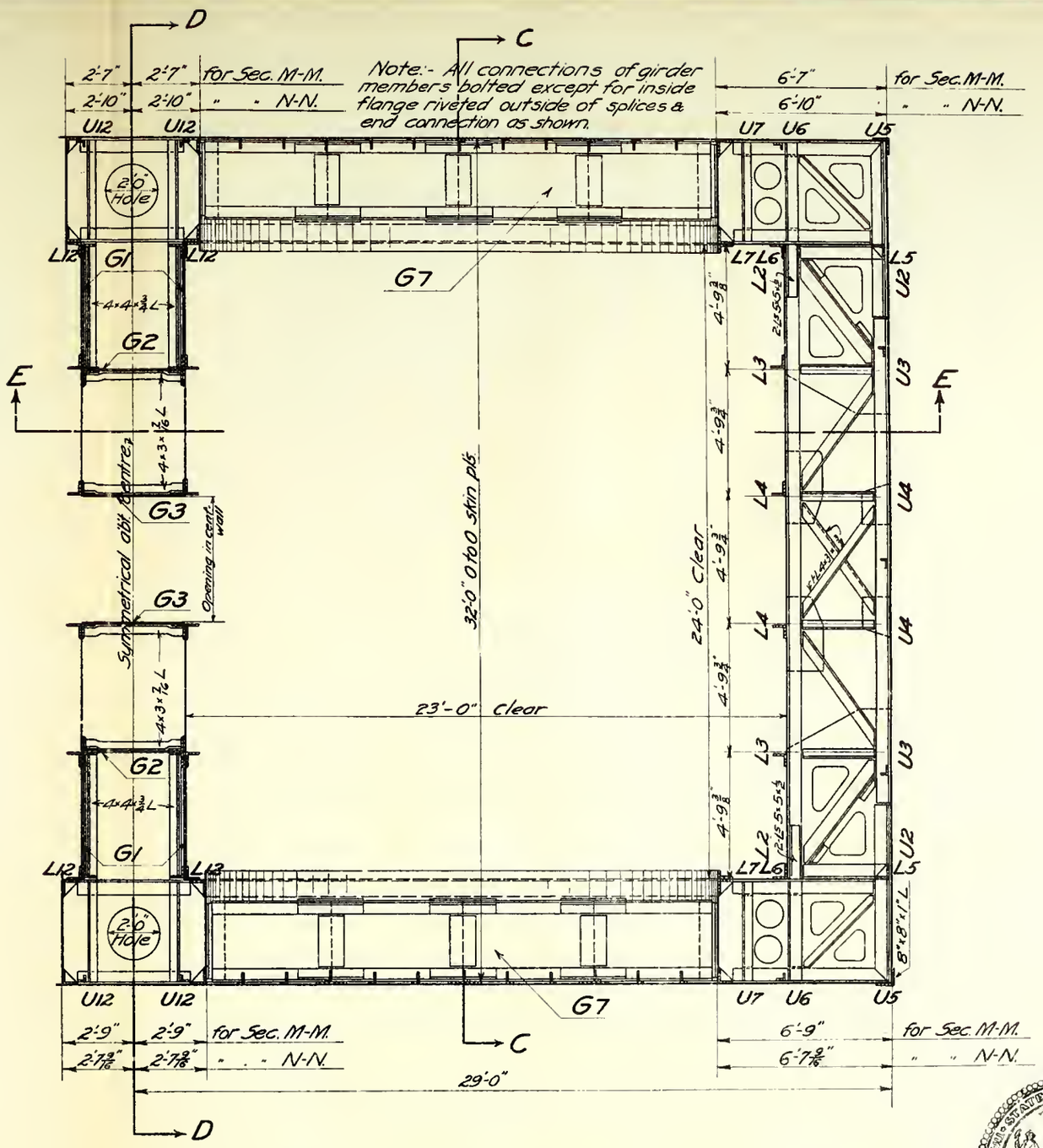

DETAIL OF CENTER-WALL CONNECTION.




SECTION a-a.




DETAIL OF CORNERS.




SECTION M-M as shown and noted.
SECTION N-N " " "

REFERENCE NOTES.

For Plan and finished structure see drawings No. C-19 to C-21
" Section D-D " drawing " C-23
" Part " E-E " " " C-25
" Schedule showing sizes of members see dwg. " C-31
" Detail of Skin Plates see drawings " C-32 to C-37
" Section C-C see drawing " C22

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-28

DATE MARCH 14, 1914

SCALES 0 1 2 FEET 0 1 2 3 FEET

CHIEF ENGINEER

DRAWN BY Wray...
CHECKED BY Finkelstein

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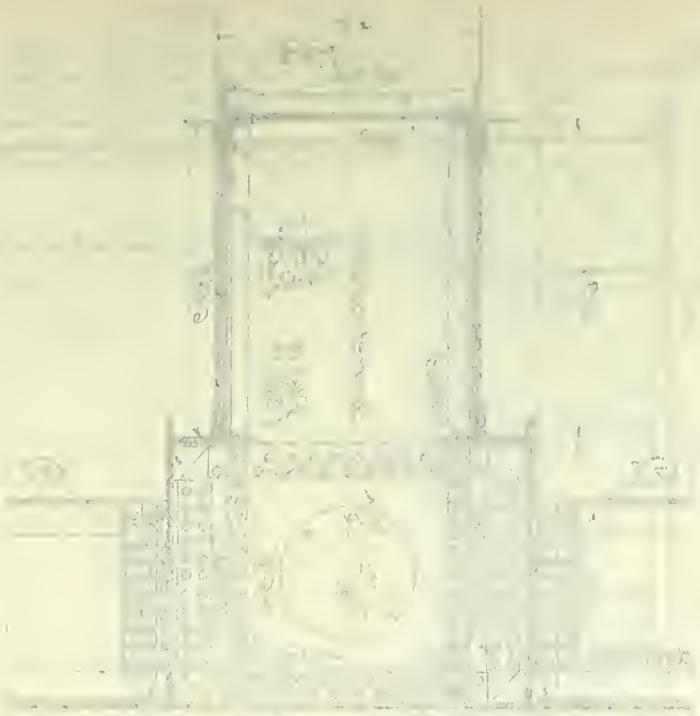
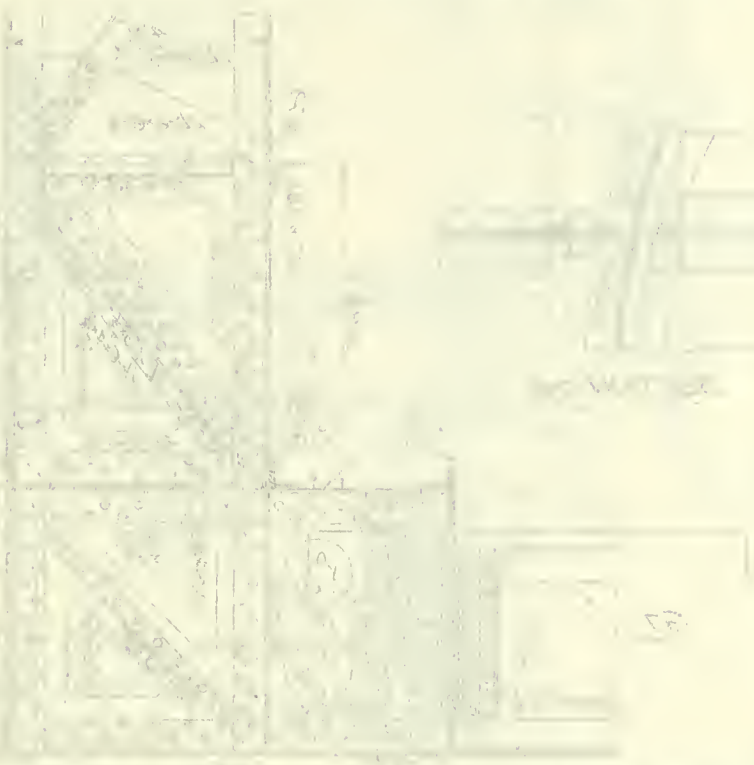
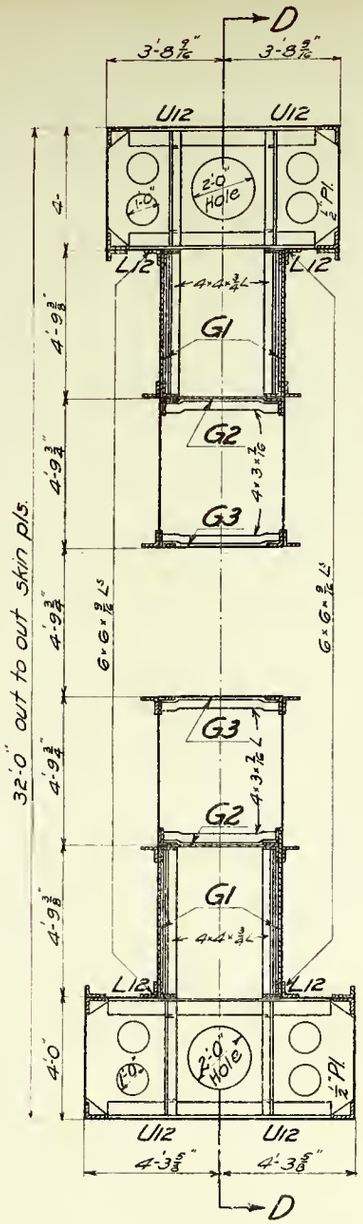
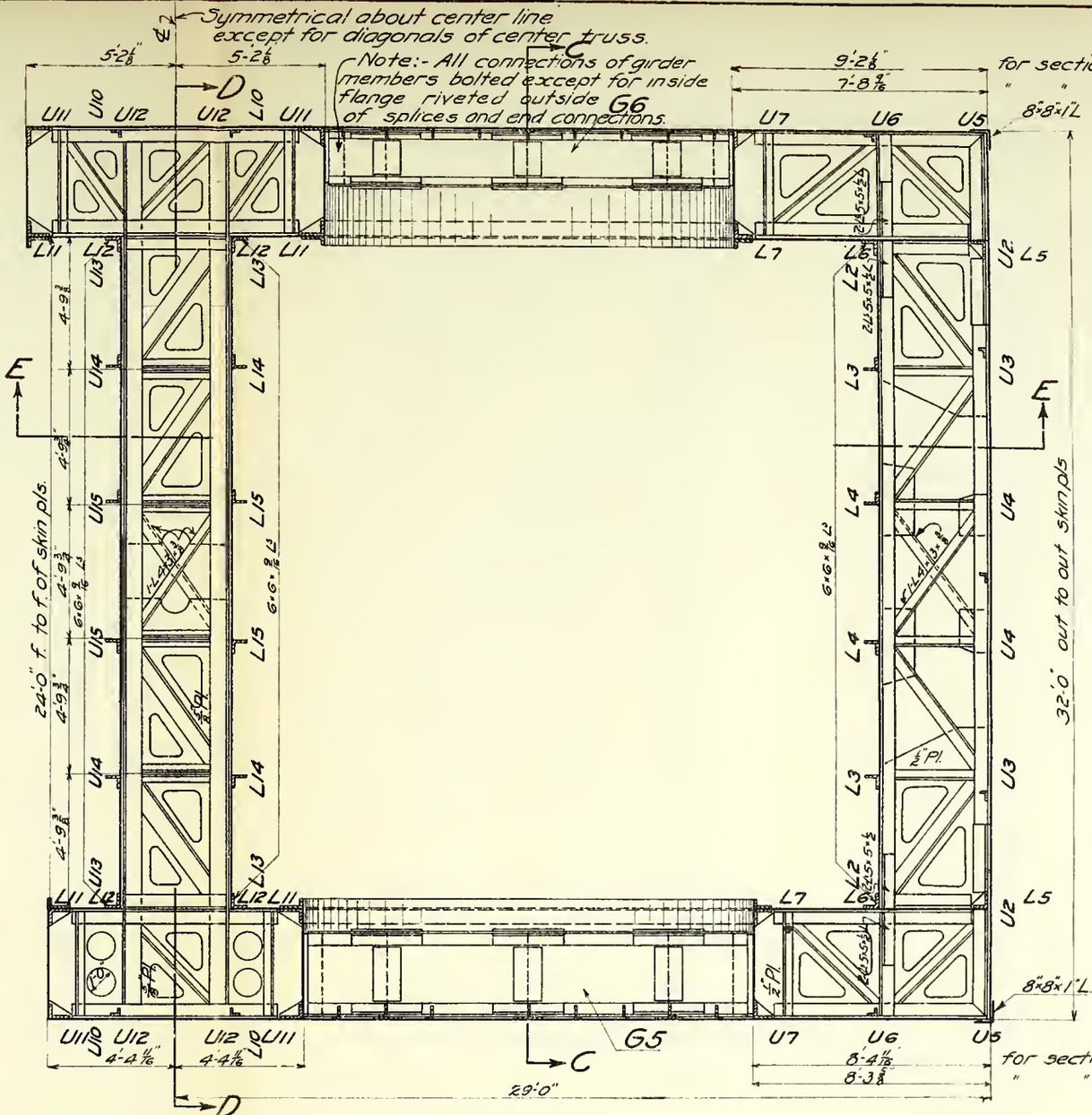







Center Wall Section K-K




Center Wall Section O-O

SECTION O-O

End Wall Section O-O
" " " K-K same except as noted.

Note: 1/2" Gusset Plates
Rivets 7/8" dia.

REFERENCE NOTES.

For Plan and finished structure see drawings No. C-19 to C-21
" Section D-D " drawing " C-23
" Part " E-E " " " C-25
" Schedule showing sizes of members see dwg. " C-31
" Detail of Skin Plates see drawings C-32 to C-37
" Section C-C " " " C-22

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-29

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 0 1 2 3 FEET

DRAWN BY Wray

CHECKED BY Finklestein

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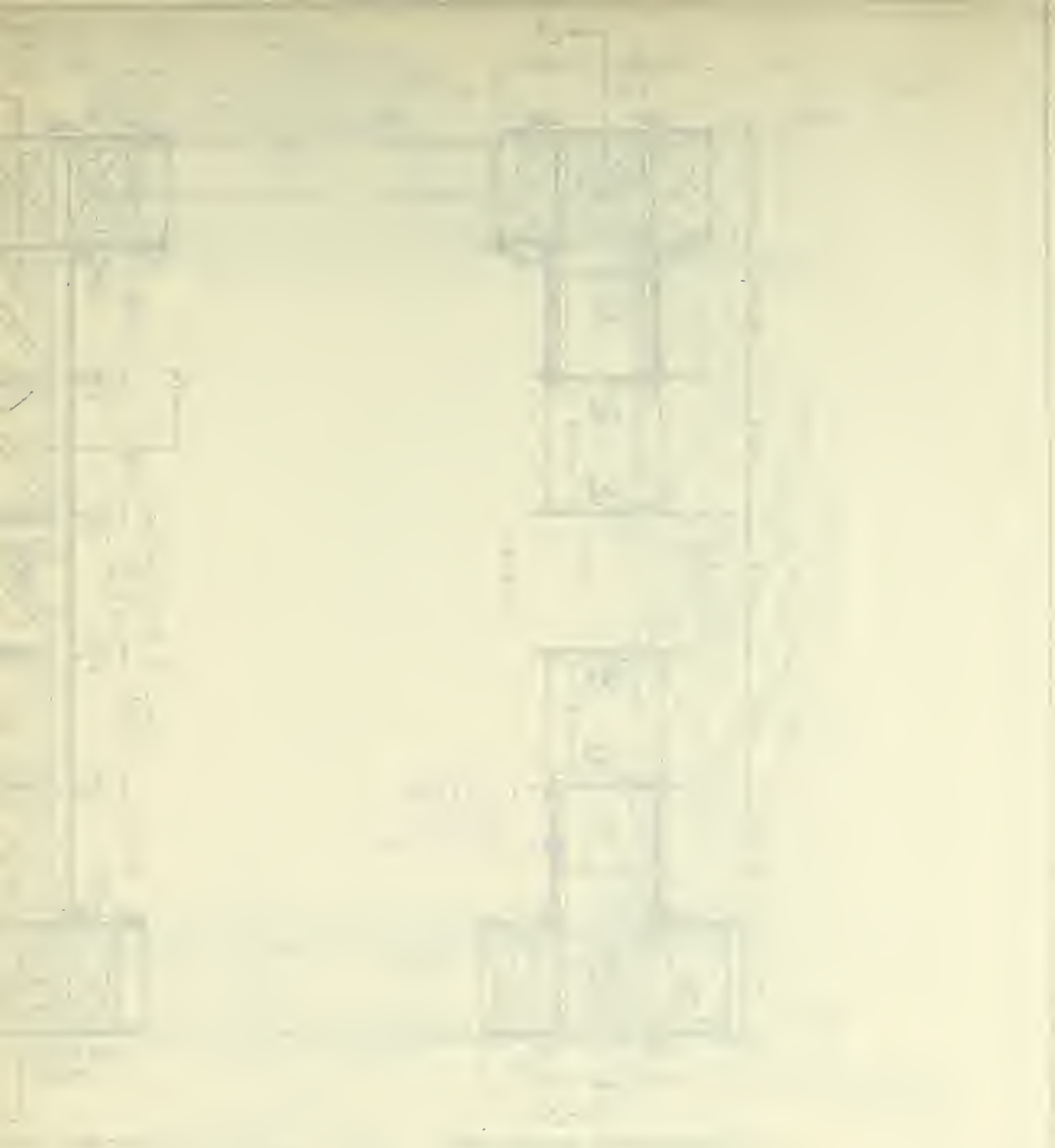
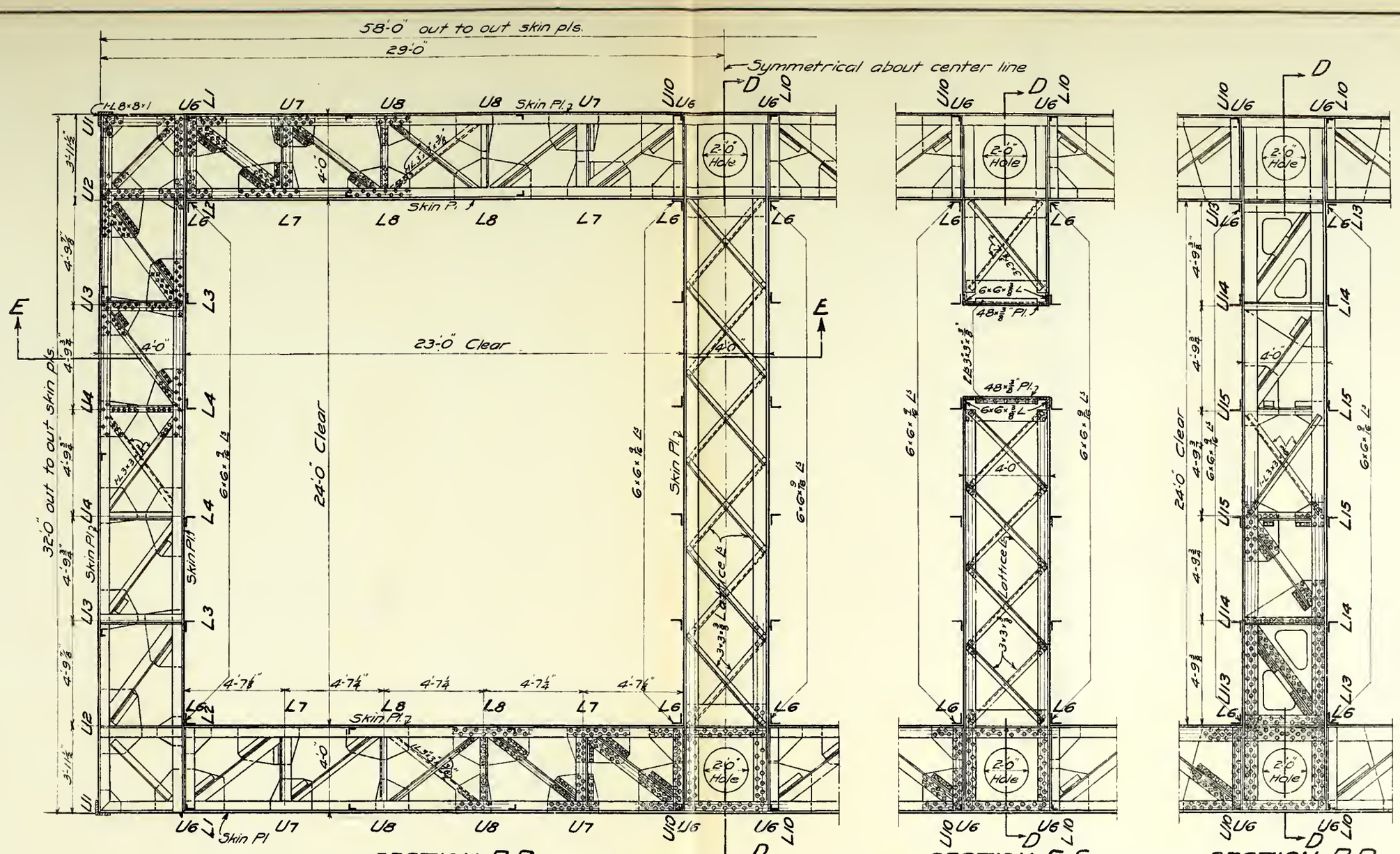





## SECTION R-R

Sections T-T, W-W and X-X similar to sect. R-R

## SECTION S-S

Parts not shown similar to section R-R.
Section V-V opp. hand to section S-S

## SECTION P-P

Parts not shown similar to section R-R

### NOTE

3/4" Rivets for sections V-V, W-W & X-X; all others 7/8".
Gusset plates 1/2" thick for sections P-P, R-R, S-S and T-T and 3/8" thick for sections V-V, W-W and X-X
All clip ∠s 4"×3"×1/2"

### REFERENCE NOTES.

For Plan and finished structure see drawings No C-19 to C-21

| | | | | | |
|---|---|---|---|---|---|
| " | Section | D-D | " | " | " C-23 |
| " Part | " | E-E | " | " | " C-24 |
| " | " | E-E | " | " | " C-25 |
| " Schedule showing sizes of members see dwg | | | | | " C-31 |
| " Detail of Skin Plates | | see drawings | | | " C-32 to C-37 |

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-30

DATE MARCH 14, 1914

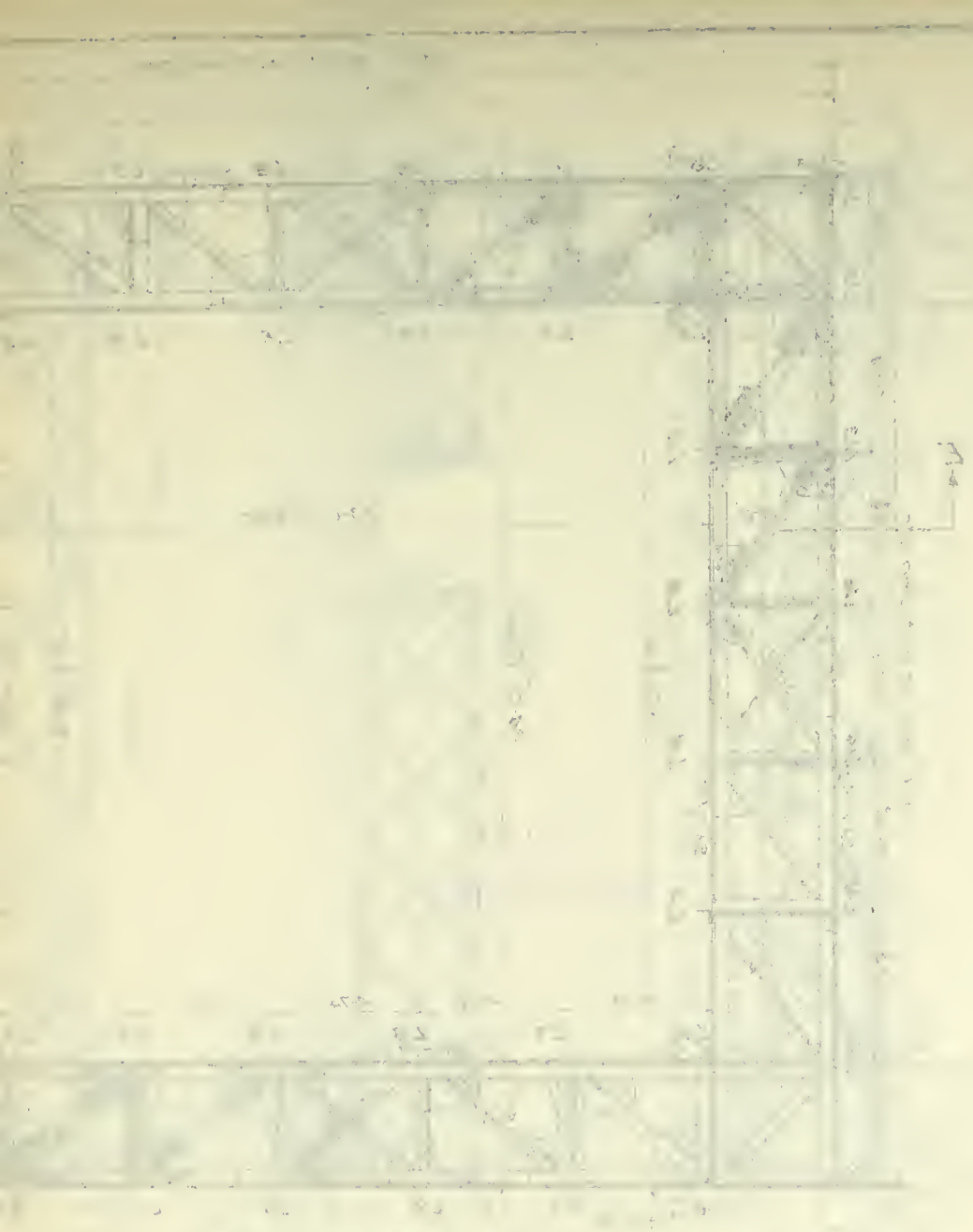
CHIEF ENGINEER

SCALE 0 1 2 3 FEET

DRAWN BY Booth

CHECKED BY Finkelstein

M.B. BROWN PRINTING & BINDING CO N.Y.



## SIDE WALL TRUSSES

| Section | U1-U1 | L1-L1 | U1-L1 | U2-L1 | U2-L2 | U2-L3 | U2-U3 | U3-U3 | U3-L2 | L2-L2 | U3-L3 | U3-L4 | U4-L4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J-J | | | | | 2-L's 6×4×½ | | 2-L's 6×4×½ 1-Pl. 9×½ | 2-L's 6×6×½ | 2-L's 6×4×⅜ | 2-L's 6×6×½ | 2-L's 4×3×7/16 | 2-L's 5×3×⅜ | 2-L's 4×3×7/16 |
| K-K | | | | | do | | do | 2-L's 6×6×9/16 | do | 2-L's 6×6×9/16 | do | do | do |
| M-M | | | | | do | | do | do | do | do | do | do | do |
| N-N | | | | | do | | do | do | do | do | do | do | do |
| O-O | | | | | do | | do | | 2-L's 6×6×½ | do | do | 2-L's 5×3×7/16 | do |
| P-P | 2-L's 6×6×7/16 | 2-L's 8×6×½ | 2-L's 6×6×⅜ | 2-L's 4×4×⅜ | 2-L's 8×6×9/16 | 2-L's 6×6×½ | | | | | | 2-L's 6×4×½ | 2-L's 4×3×7/16 | 2-L's 4×3×⅜ |
| R-R | 2-L's 6×6×⅜ | 2-L's 6×6×7/16 | 2-L's 6×4×7/16 | do | 2-L's 6×6×9/16 | 2-L's 6×3½×⅜ | | | | | 2-L's 5×3½×7/16 | do | do |
| S-S | 2-L's 6×4×⅜ | 2-L's 6×3½×½ | 2-L's 6×4×⅜ | do | 2-L's 6×3½×½ | 2-L's 6×3½×7/16 | | | | | 2-L's 4×3×½ | 2-L's 4×3×⅜ | 1-L 4×3×½ |
| T-T | 2-L's 4×4×⅜ | 2-L's 4×4×7/16 | 2-L's 4×4×⅜ | 2-L's 4×3×⅜ | 2-L's 4×4×½ | 2-L's 6×3½×⅜ | | | | | 2-L's 4×3×⅜ | 1-L 4×3×7/16 | 1-L 4×3×⅜ |
| V-V | 2-L's 4×3½×⅜ | 2-L's 4×3½×⅜ | 2-L's 4×3½×⅜ | do | 2-L's 4×3½×⅜ | 1-L 4×4×7/16 | | | | | 1-L 4×4×7/16 | 1-L 3×3×⅜ | 1-L 3×3×⅜ |
| W-W | 2-L's 4×3×⅜ | 2-L's 4×3×⅜ | 2-L's 3×3×⅜ | 2-L's 3×3×⅜ | 2-L's 3×3×⅜ | 1-L 3×3×⅜ | | | | | 1-L 3×3×⅜ | do | do |
| X-X | do | do | do | do | do | do | | | | | do | do | do |

## END WALL TRUSSES AND CANTILEVERS

| Section | U5-L5 | U5-U7 | L5-L7 | L5-L8 | U5-U8 | U6-U6 | L6-L6 | U6-L5 | U6-L6 | U6-L7 | U7-L7 | U7-L8 | U8-L8 | Gusset Pls. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J-J | 2-L's 6×4×½ 1-Pl. 9×½ | | | 2-L's 8×6×½ | 2-L's 6×4×½ | | | 2-L's 6×4×½ | 2-L's 6×5×5/16 2-L's 5×5×5/16 | 2-L's 6×4×½ | 2-L's 4×3×½ | 2-L's 6×4×⅜ | 1-L 4×3×7/16 | ½" thick |
| K-K | do | 2-L's 6×4×½ | 2-L's 8×6×½ | | | | | 2-L's 3×3×⅜ | 2-L's 5×5×5/16 2-L's 6×6×⅜ | 2-L's 4×3×½ | 1-L 4×3×7/16 | | | ½" do |
| M-M | do | do | do | | | | | do | 2-L's 6×6×½ | | do | | | ½" do |
| N-N | do | do | do | | | | | do | do | | do | | | ½" do |
| O-O | do | do | do | | | | | 2-L's 4×3×7/16 | 2-L's 6×6×½ 2-L's 5×5×½ | 2-L's 4×3×½ | do | | | ½" do |
| P-P | | | | | | 2-L's 6×6×⅜ | 2-L's 8×6×9/16 | | 2-L's 6×6×½ | 2-L's 6×6×⅜ | 2-L's 6×6×7/16 | 2-L's 4×3×½ | 2-L's 4×4×½ | ½" do |
| R-R | | | | | | 2-L's 6×4×7/16 | 2-L's 6×6×9/16 | | do | 2-L's 6×4×⅜ | 2-L's 6×3½×9/16 | do | 2-L's 4×3×½ | ½" do |
| S-S | | | | | | 2-L's 6×4×⅜ | 2-L's 6×3½×½ | | 2-L's 6×3½×½ | 2-L's 6×3½×9/16 | 2-L's 6×3½×½ | 1-L 5×3×½ | 1-L 6×3½×½ | ½" do |
| T-T | | | | | | 2-L's 4×4×⅜ | 2-L's 4×4×½ | | 2-L's 4×4×½ | 2-L's 4×4×½ | 2-L's 3½×3½×7/16 | 1-L 4×3×½ | 1-L 3½×3½×7/16 | ½" do |
| V-V | | | | | | 2-L's 4×3½×⅜ | 2-L's 4×3½×⅜ | | 2-L's 4×3½×½ | 1-L 4×3×½ | 1-L 4×4×7/16 | 1-L 3½×3½×7/16 | do | ⅜" do |
| W-W | | | | | | 2-L's 4×3×7/16 | 2-L's 4×3×7/16 | | 2-L's 3½×3½×7/16 | 1-L 3½×3½×7/16 | 1-L 3½×3½×7/16 | do | do | ⅜" do |
| X-X | | | | | | do | do | | do | do | do | do | do | ⅜" do |

## GIRDER SCHEDULE

| Mark | Web | Total Flange Angles | Cover Plates |
|---|---|---|---|
| G1 | 1-Pl. 64×½ | 1-L 6×6×7/16 1-L 6×6×⅜ | |
| G2 | 1-Pl. 48×⅜ | 2-L's 6×6×⅜ | |
| G3 | 1-Pl. 48×½ | 2-L's 6×6×⅜ | |
| G4 | 1-Pl. 15×⅜ | 4-L's 3×3×⅜ | |
| G5 | 1-Pl. 36×⅜ | 4-L's 6×6×⅜ | 1-Pl. 14×½ |
| G6 | 1-Pl. 24×⅜ | 4-L's 6×4×⅜ | do |
| G7 | 1-Pl. 36×7/16 | 4-L's 6×6×11/16 | do |
| G8 | 1-Pl. 36×⅜ | 4-L's 6×6×9/16 | do |
| G9 | 1-Pl. 36×⅜ | 4-L's 6×6×7/16 | do |
| G10 | 1-Pl. 15×⅜ | 4-L's 4×3×7/16 | |
| G11 | 1-Pl. 48×7/16 | 2-L's 8×8×½ 2-L's 6×6×½ | 1-15[-33* |

## CENTER WALL TRUSSES AND CANTILEVERS

| Section | U10-U10, L10-L10 | U10-L10 | U10-U13 | L10-L13 | U11-U11 | U11-L11 | U11-L12 | L11-L12 | U12-U12 | L12-L12 | U12-L12 | U13-L10 | U13-U13, L13-L13 | U13-L13 | U14-L13 | U14-L14 | U15-L14 | U15-L15 | Gusset Pls. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J-J | | | 2-L's 8×8×⅝ | 2-L's 8×8×⅝ | 2-L's 6×4×½ | 1-L 4×3×7/16 | 2-L's 6×4×½ | 2-L's 6×4×½ | | 2-L's 6×4×½ | | 2-L's 5×3½×9/16 | 2-L's 8×8×⅝ 1-Pl. 23×½ | 2-L's 6×4×½ | 2-L's 8×8×11/16 | 4-L's 3×3×7/16 | 2-L's 6×6×11/16 | 4-L's 3×3×7/16 | ⅝" thick |
| K-K | | | | | | | | | 2-L's 6×6×⅜ | 2-L's 6×6×⅜ | 2-L's 4×4×¾ | | | | | | | | ½" do |
| M-M | | | | | | | | | do | do | do | | | | | | | | ½" do |
| N-N | | | | | | | | | do | do | do | | | | | | | | ½" do |
| O-O | | | 2-L's 8×8×½ | 2-L's 8×8×½ | 2-L's 6×4×½ | 1-L 4×3×7/16 | 2-L's 4×3×7/16 | 2-L's 6×4×½ | | 2-L's 6×4×½ | | 2-L's 4×3×7/16 | 2-L's 8×8×½ 1-Pl. 23×½ | 2-L's 6×4×½ | 2-L's 8×8×⅝ | 4-L's 3½×3½×½ | 2-L's 6×4×½ | 4-L's 3×3×⅜ | ⅝" do |
| P-P | 2-L's 8×8×¾ | 2-L's 5×3½×⅜ | | | | | | | | | | | | 2-L's 6×6×⅜ 2-L's 8×6×7/16 | 2-L's 6×6×½ | 2-L's 4×4×⅜ | 2-L's 6×4×7/16 | 2-L's 4×3×7/16 | ½" do |
| R-R | 2-L's 8×6×⅝ | do | | | | | | | | | | | | | | | | | ½" do |
| S-S | 2-L's 6×3½×½ | 2-L's 4×3×⅜ | | | | | | | | | | | | | | | | | ½" do |
| T-T | 2-L's 6×6×⅝ | do | | | | | | | | | | | | | | | | | ½" do |
| V-V | 2-L's 4×4×⅜ | do | | | | | | | | | | | | | | | | | ⅜" do |
| W-W | 2-L's 3½×3×⅜ | 2-L's 3×3×⅜ | | | | | | | | | | | | | | | | | ⅜" do |
| X-X | do | do | | | | | | | | | | | | | | | | | ⅜" do |

## REFERENCE NOTES.

For Section J-J see drawing No C-27
" " 5 M-M & N-N " " " C-28
" " K-K & O-O " " " C-29
" " 5 P-P, R-R, S-S, T-T, V-V, W-W & X-X " " " C-30

DRAWN BY Wray-Booth
CHECKED BY Finkelstein

64469

# ROUTE NO. 33

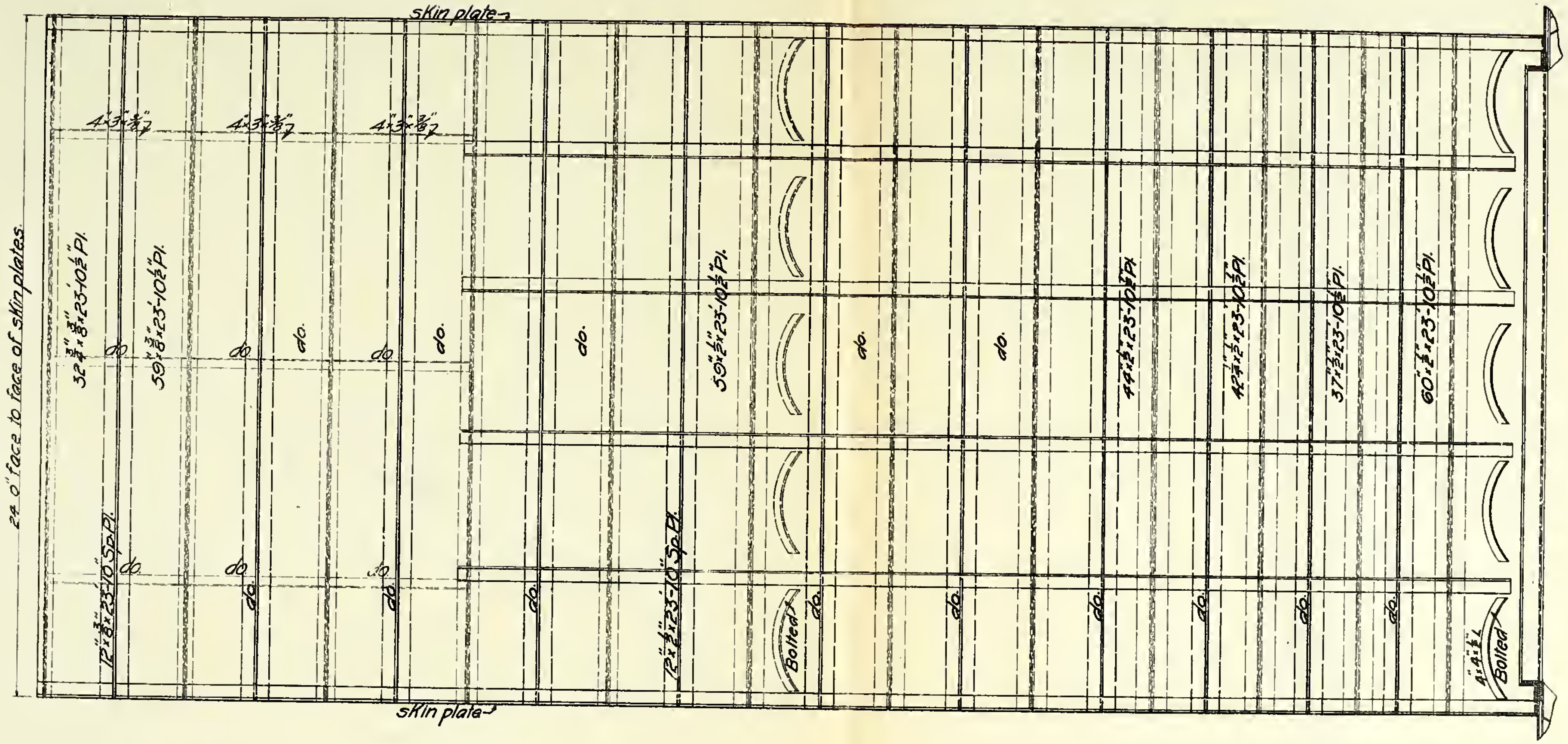
SECTION NO. 2

CONTRACT DRAWING NO. C-31

DATE MARCH 14, 1914

CHIEF ENGINEER

M.B BROWN PRINTING & BINDING CO. N.Y.




SKIN PLATES

INSIDE FACE OF SIDE WALLS.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-32

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 0 1 2 3 FEET

DRAWN BY Nicholson

CHECKED BY Finkelstein

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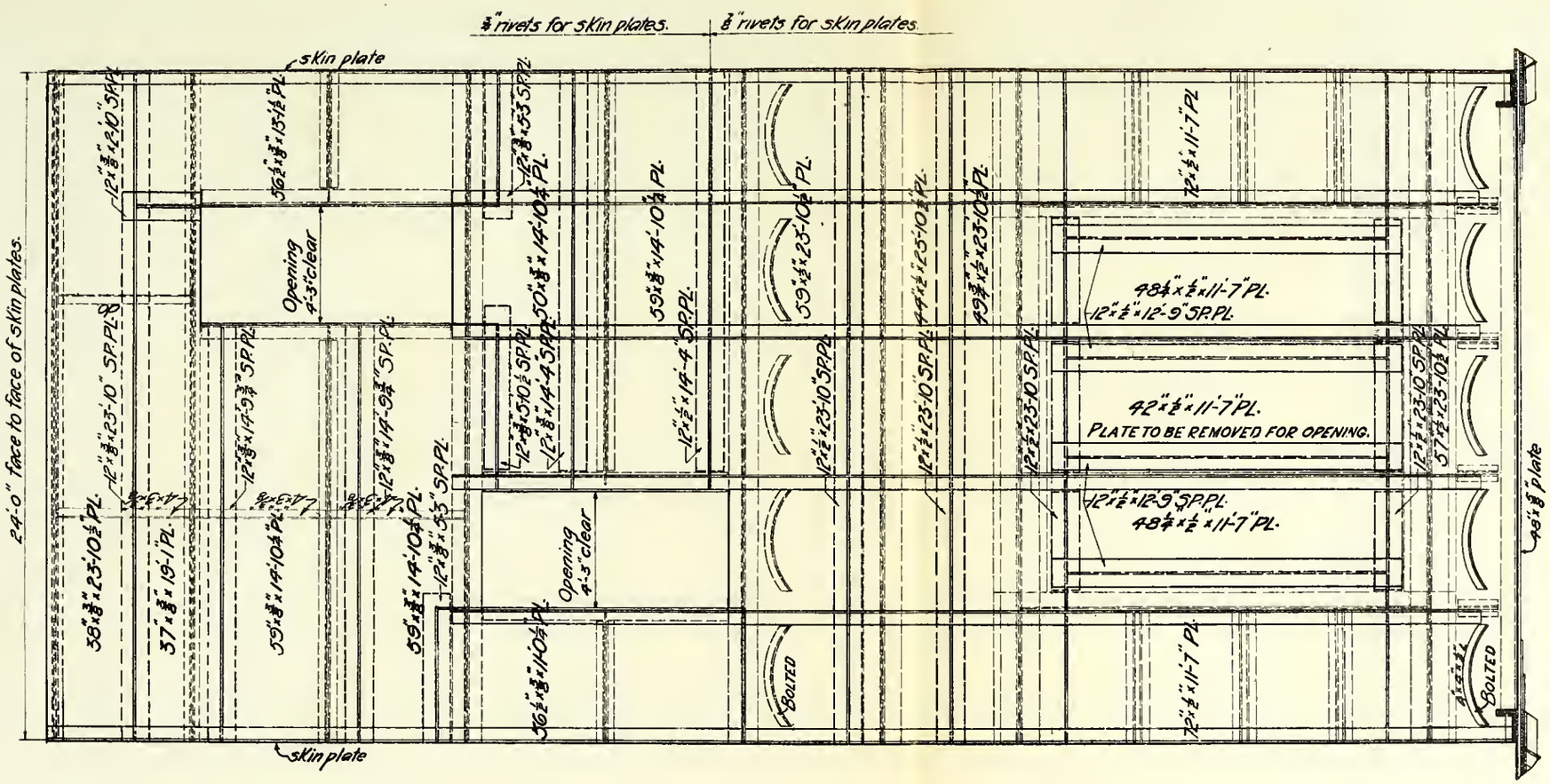


## SKIN PLATES
### CENTRE WALL.

Opposite side is opposite hand to that shown

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-33

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 0 1 2 3 FEET

DRAWN BY Nicholson.

CHECKED BY Finkelstein

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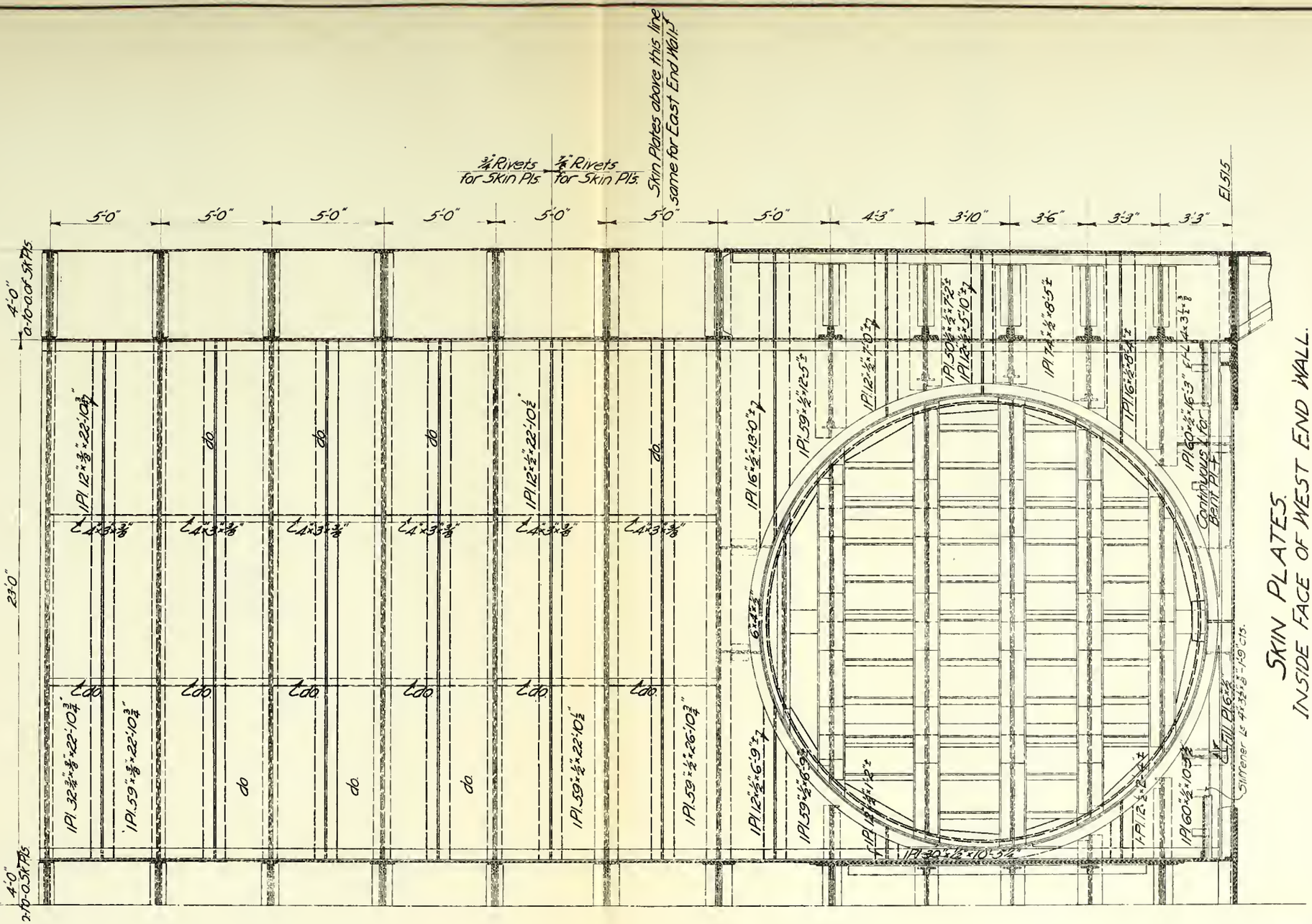


SKIN PLATES.
INSIDE FACE OF WEST END WALL.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-34

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 0 1 2 3 FEET

DRAWN BY Cattano

CHECKED BY Nicholson

644 KS

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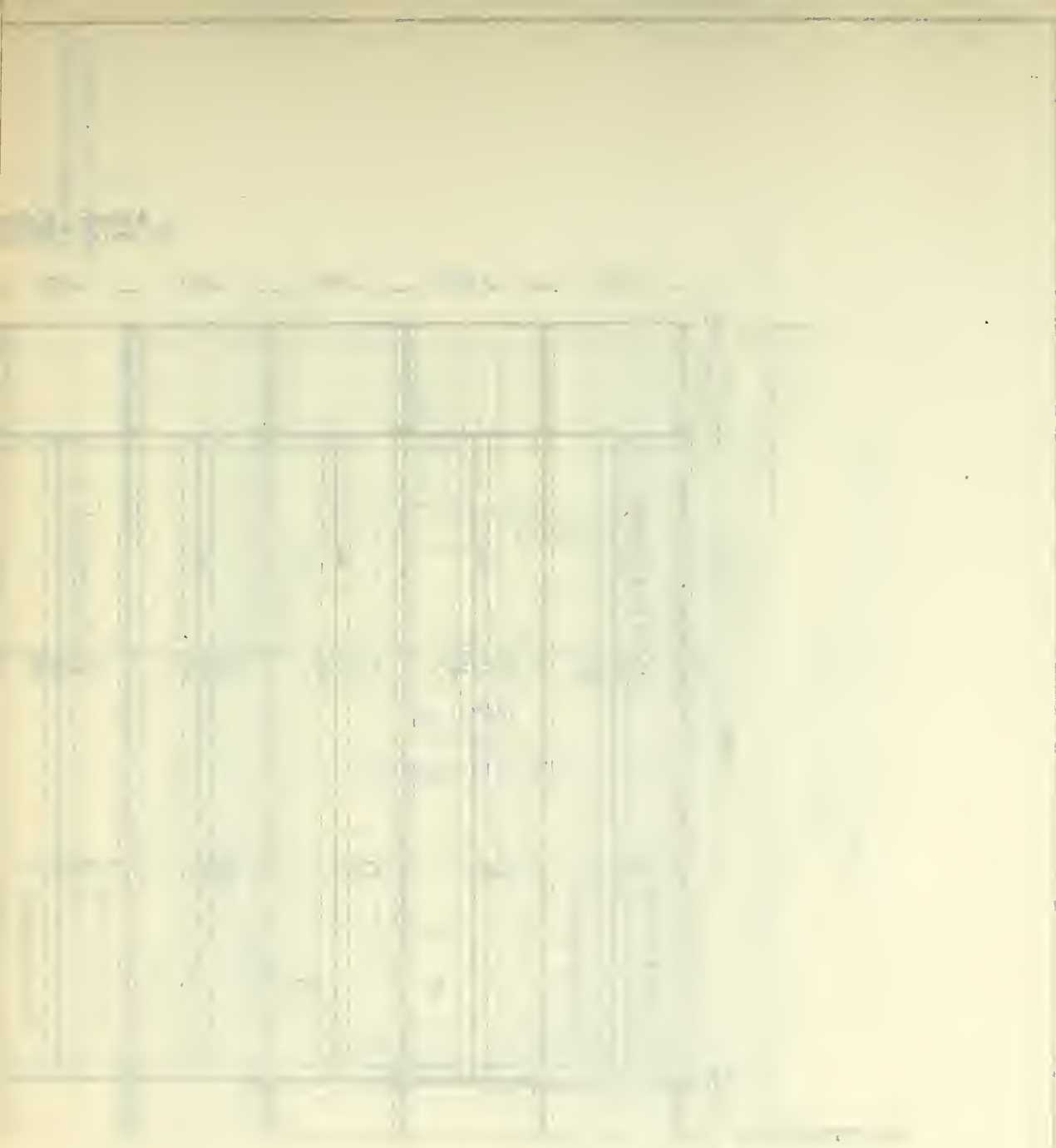

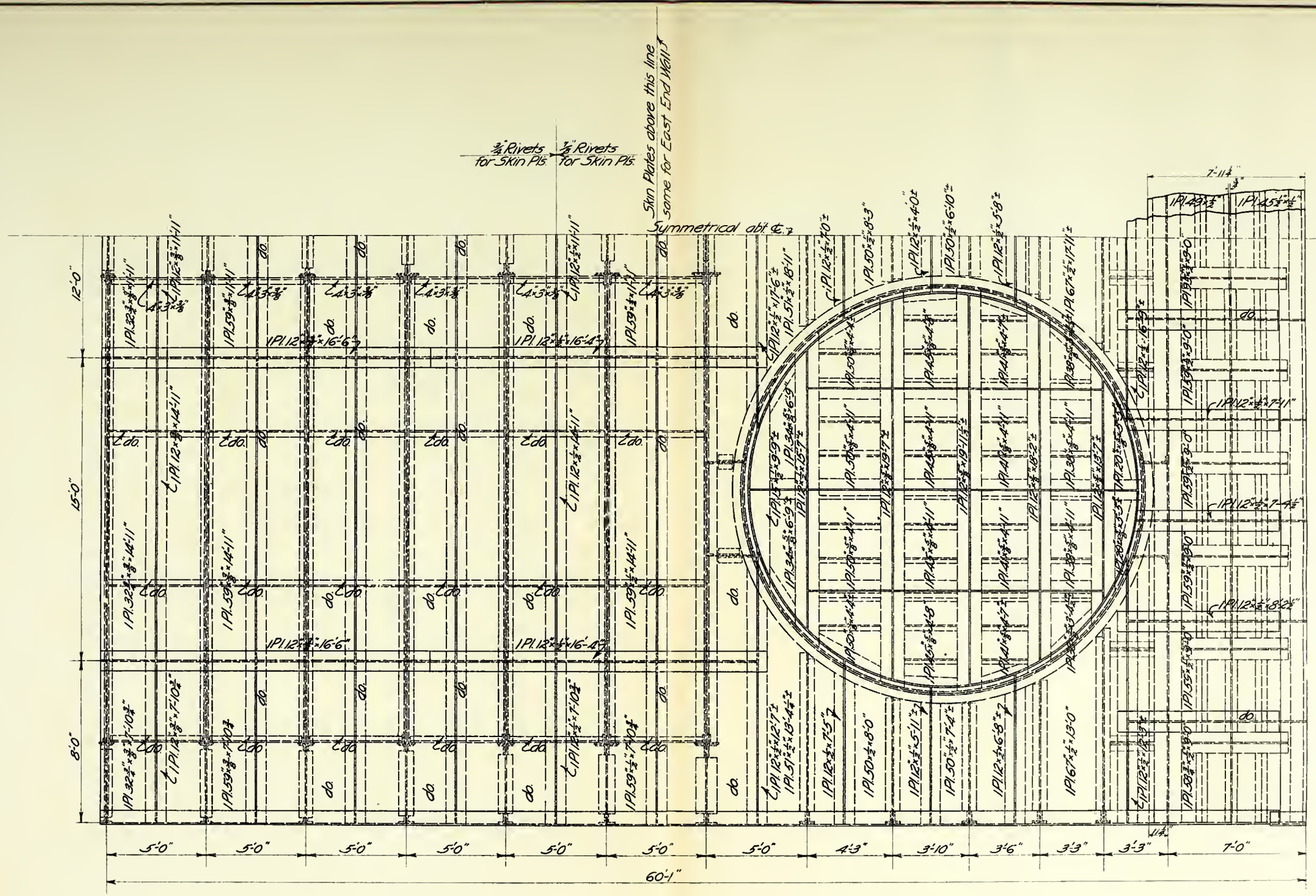


SKIN PLATES.
OUTSIDE FACE OF WEST END WALL.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-35

DATE MARCH 14, 1914

CHIEF ENGINEER

SCALE 0 1 2 3 FEET

DRAWN BY Cattano.

CHECKED BY Nicholson.

61469

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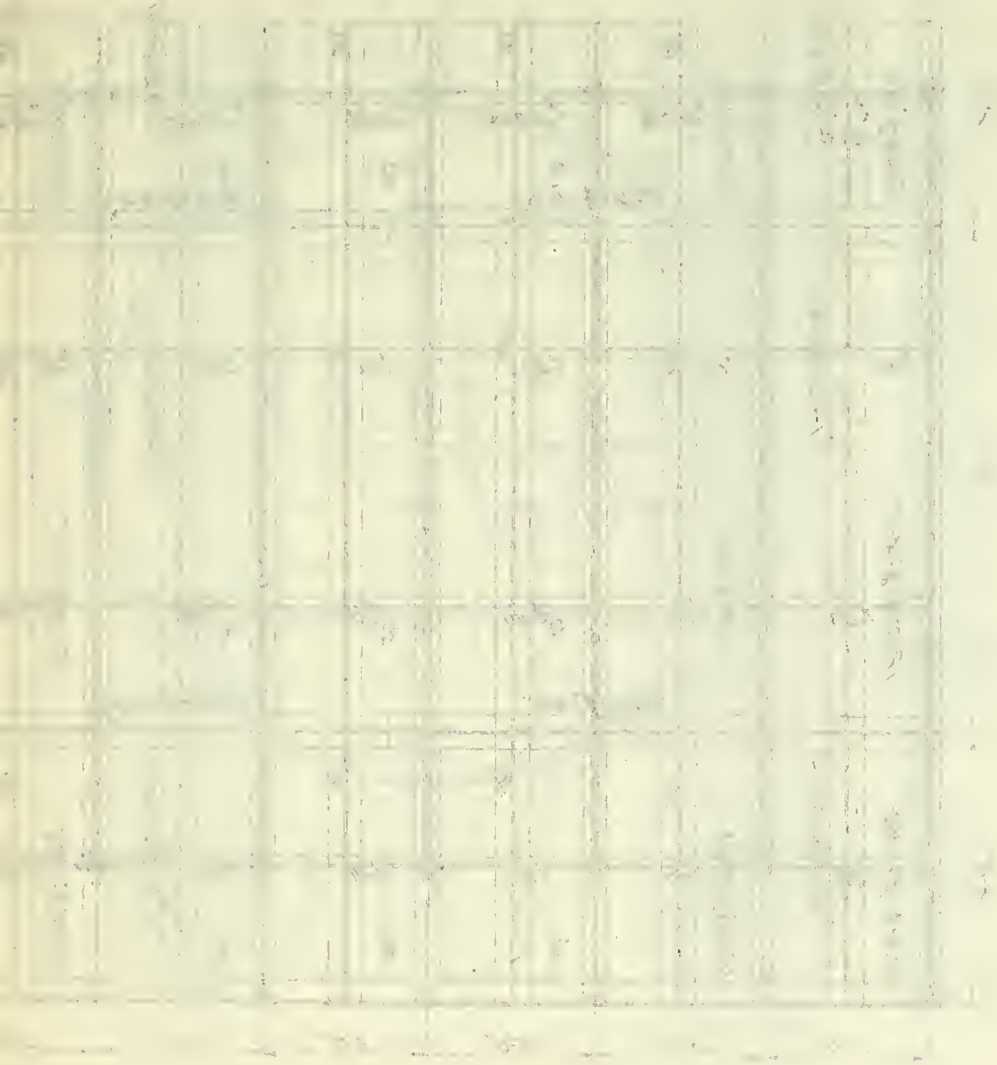
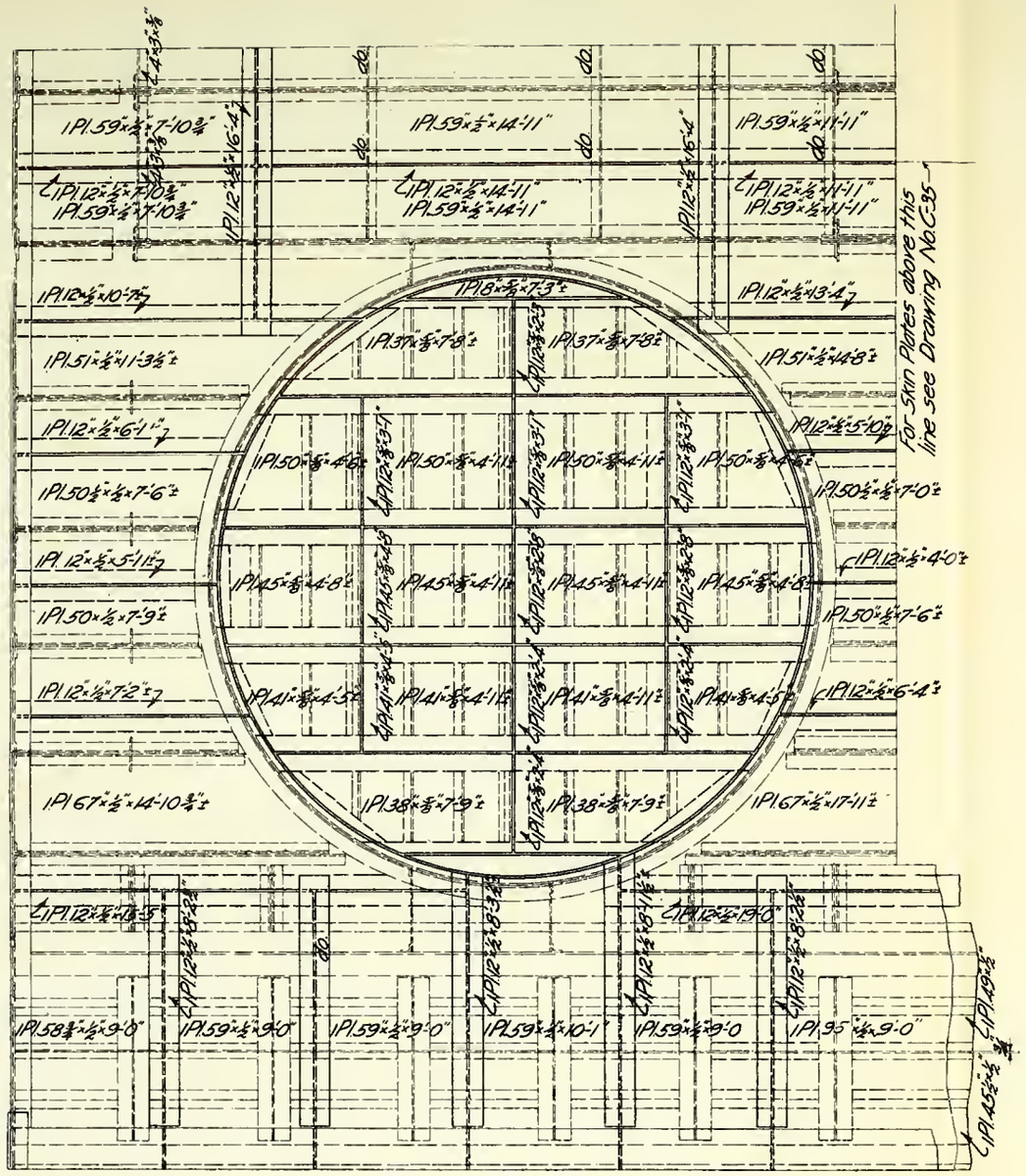
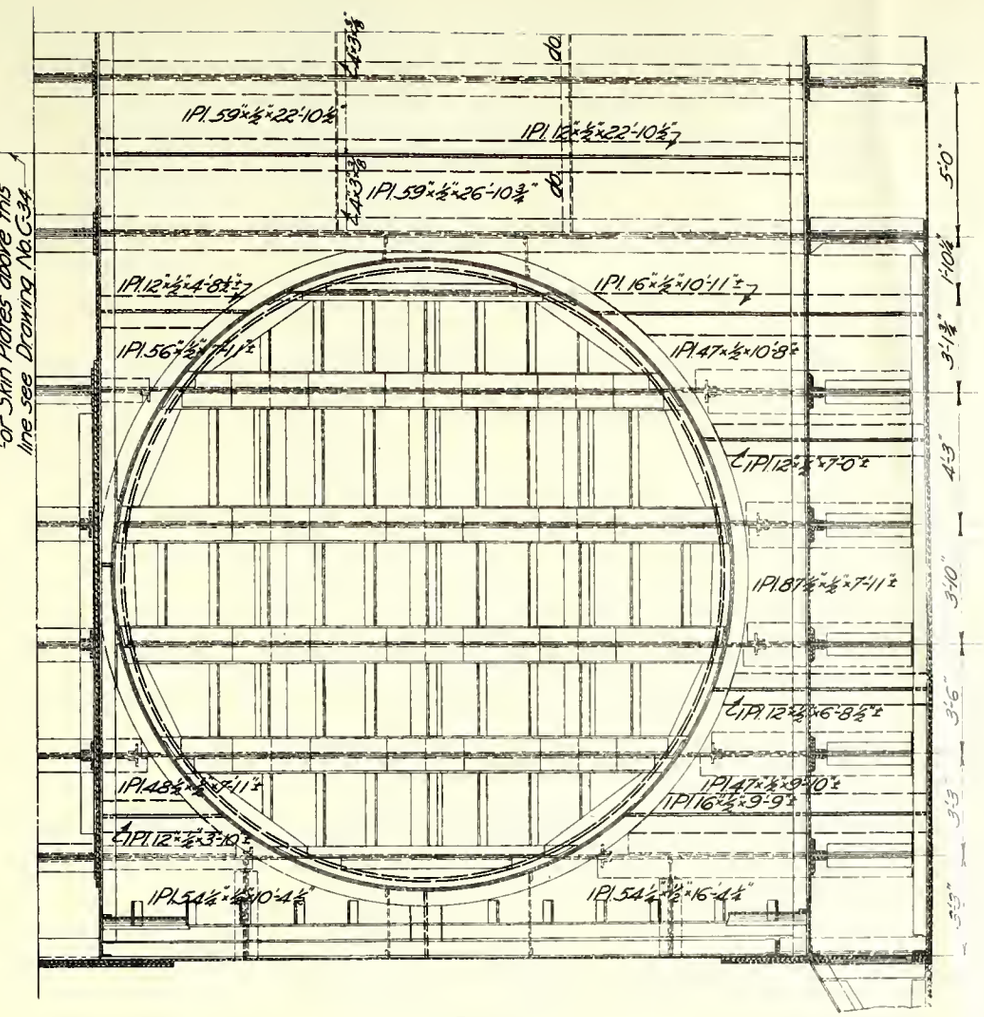





SKIN PLATES.
OUTSIDE FACE OF EAST END WALL.




SKIN PLATES.
INSIDE FACE OF EAST END WALL.

# ROUTE NO. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-36

DATE MARCH 14, 1914

CHIEF ENGINEER

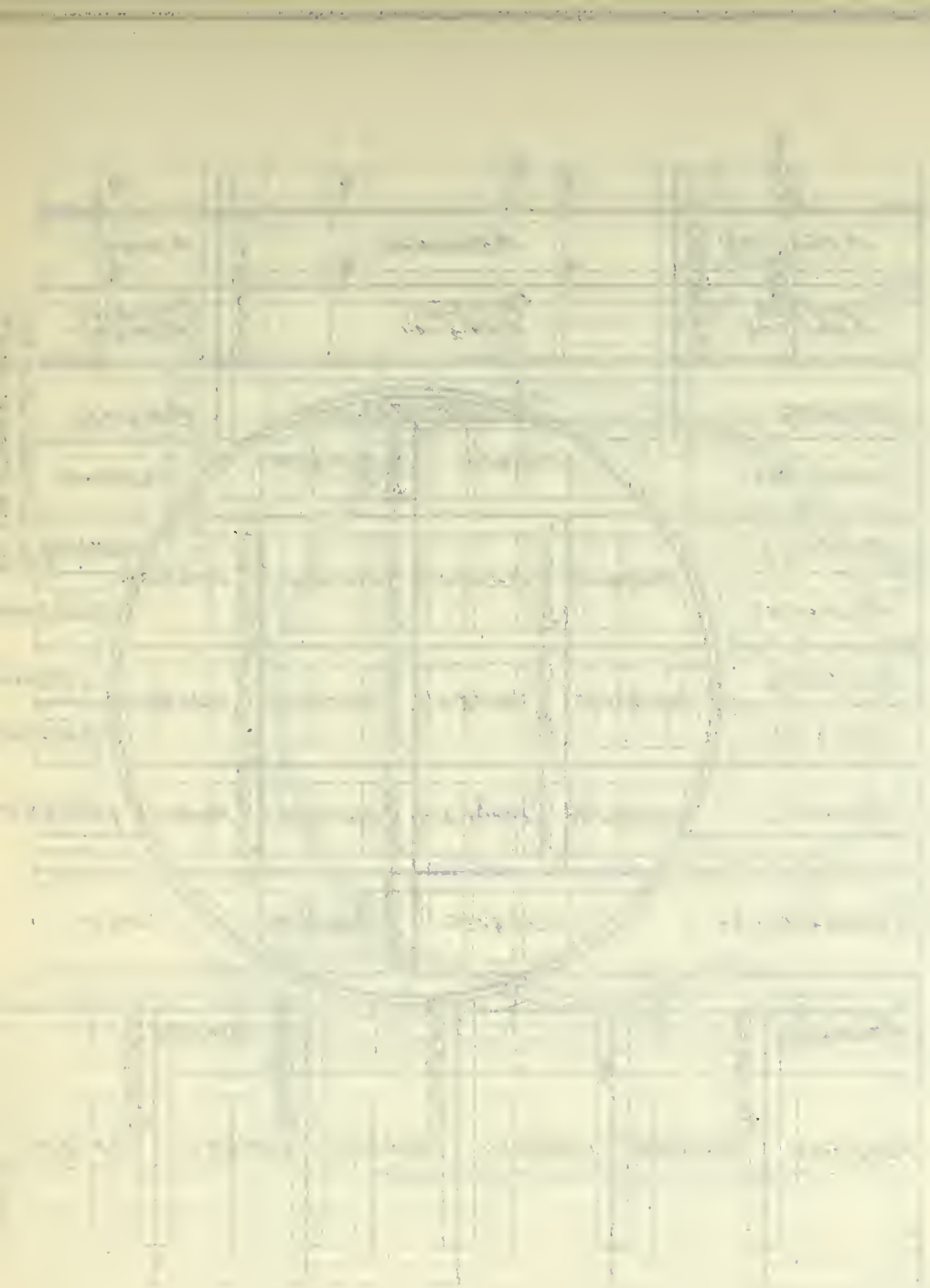
SCALE 0 1 2 3 FEET

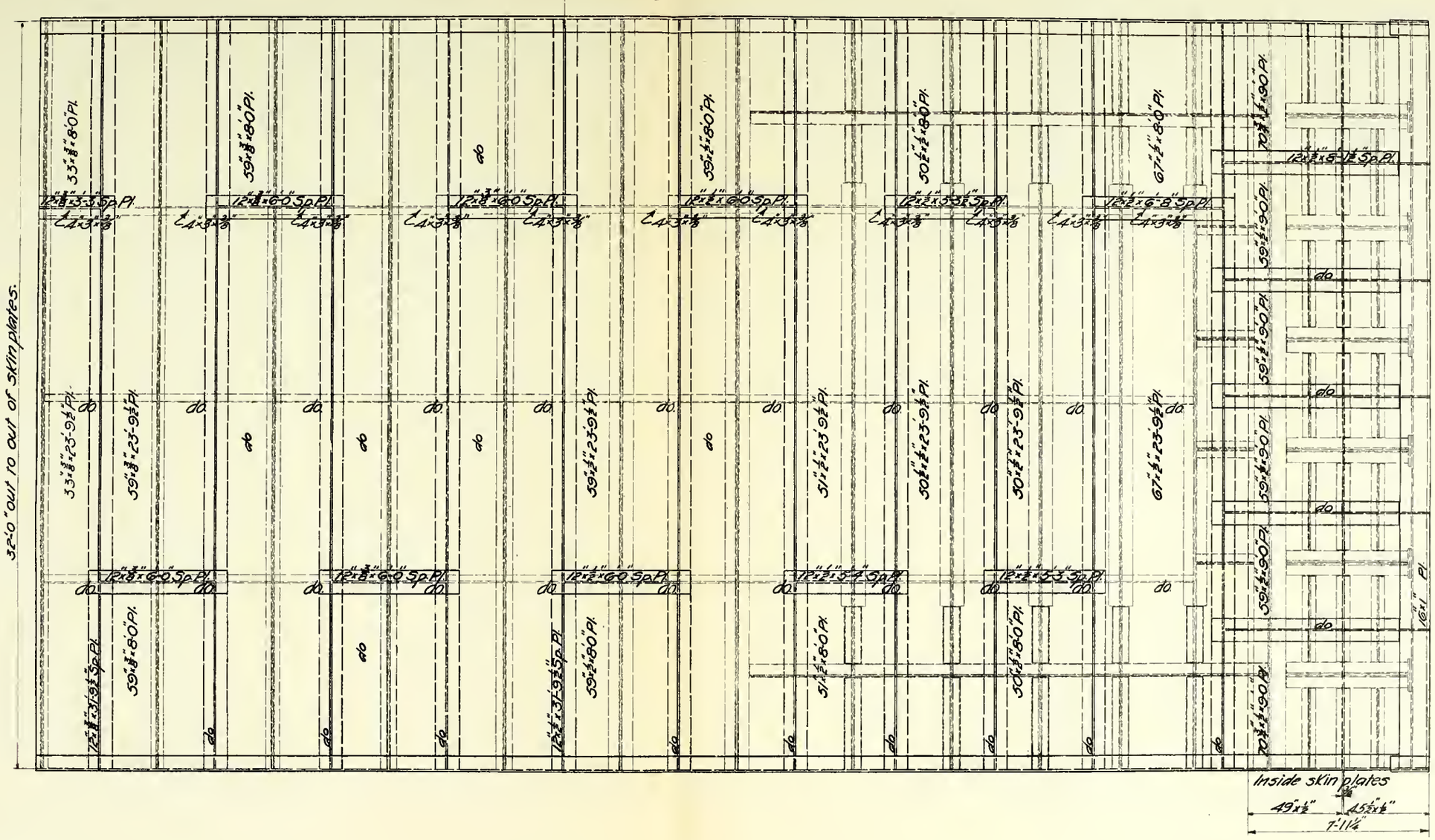
DRAWN BY Booth

CHECKED BY Nicholson

64469

M.B BROWN PRINTING & BINDING CO N.Y.






DRAWN BY Nicholson.
CHECKED BY Finkelstein

64469

# ROUTE NO. 33

SECTION NO. 2

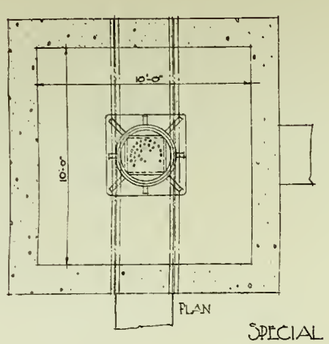
CONTRACT DRAWING NO. C-37

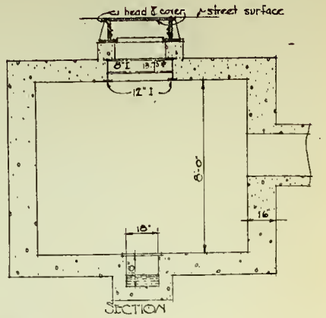
DATE MARCH 14, 1914

CHIEF ENGINEER

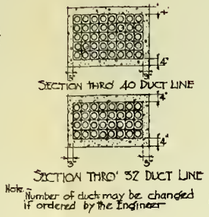
SCALE 0 1 2 3 FEET

M.B BROWN PRINTING & BINDING CO. N.Y.

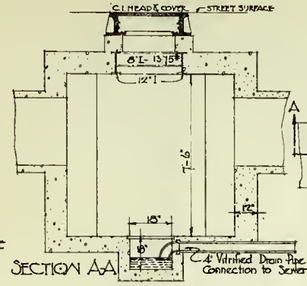


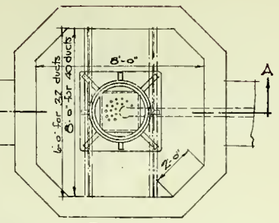




SPECIAL MANHOLE



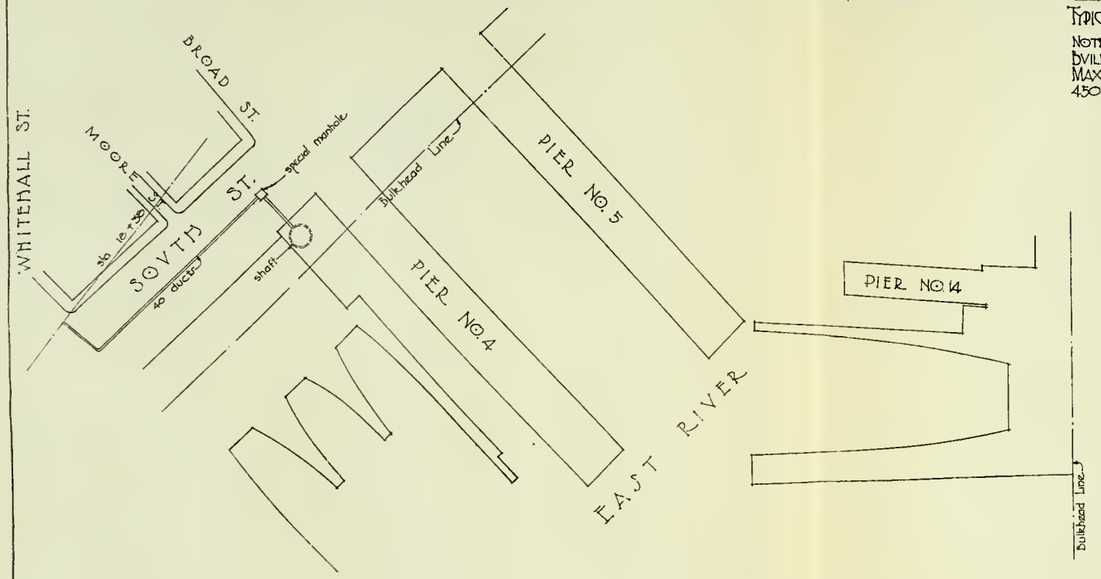

Note: Number of ducts may be changed if ordered by the Engineer

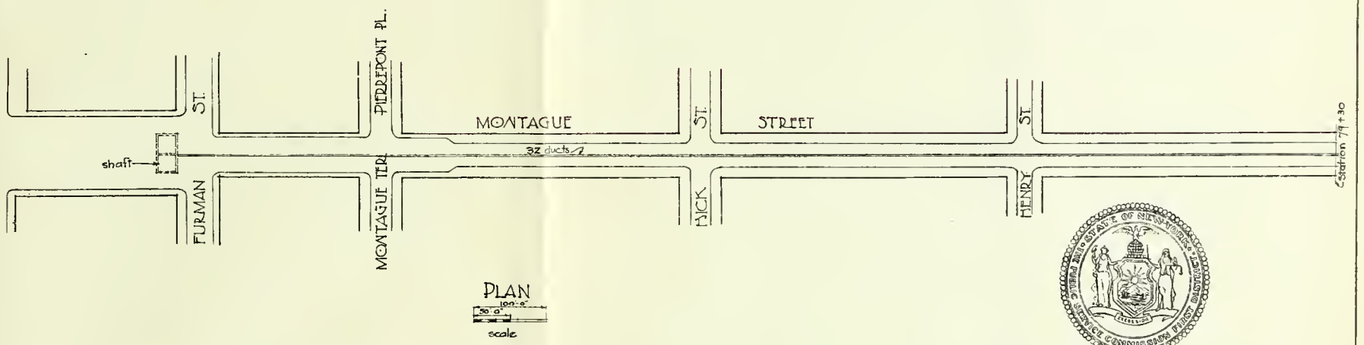



TYPICAL DUCT MANHOLE FOR STREET CONSTRUCTION

NOTE-
BUILD A MANHOLE AT EVERY ANGLE IN THE LINE
MAXIMUN DISTANCE BETWEEN MANHOLES
450 FEET ON STRAIGHT LINES.




# ROUTE No. 33

SECTION NO. 2

CONTRACT DRAWING NO. C-38

DATE- MAR. 14 1914

CHIEF ENGINEER

SCALE AS SHOWN

DRAWN BY

TRACED BY

64463

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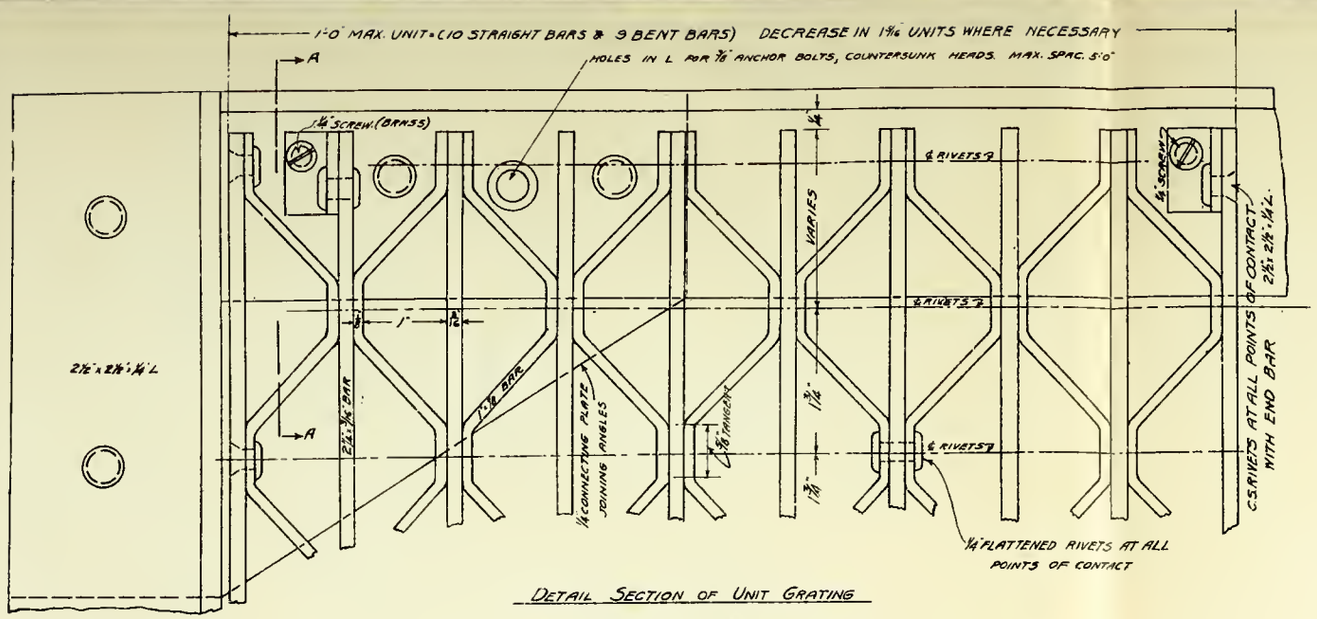
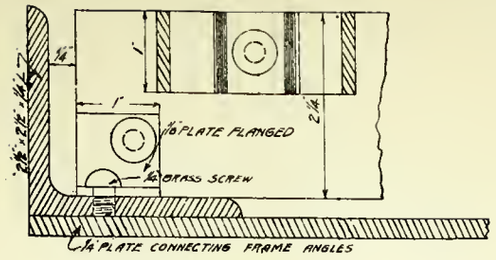
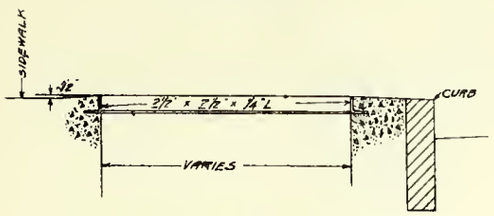



DETAIL SECTION OF UNIT GRATING

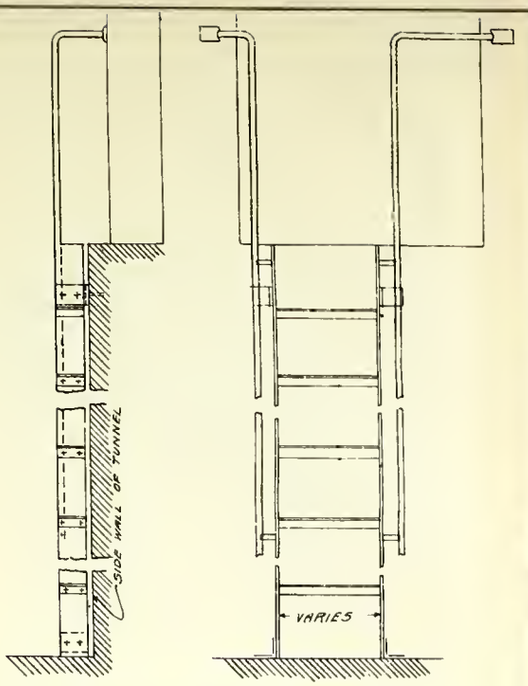
SCALE IN INCHES 0 1 2 3



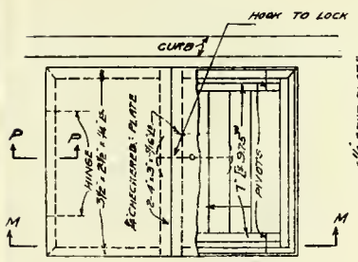

SECTION AA



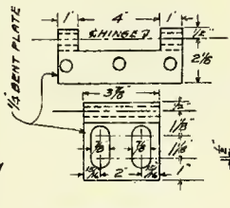

TYPICAL SECTION THROUGH GRATING



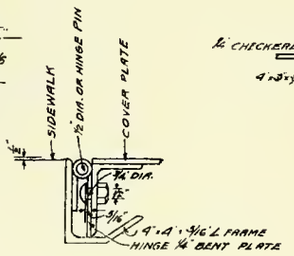

LADDER TYPE B
FOR ACCESS TO FAN CHAMBER
SCALE IN FEET 0 1 2 3



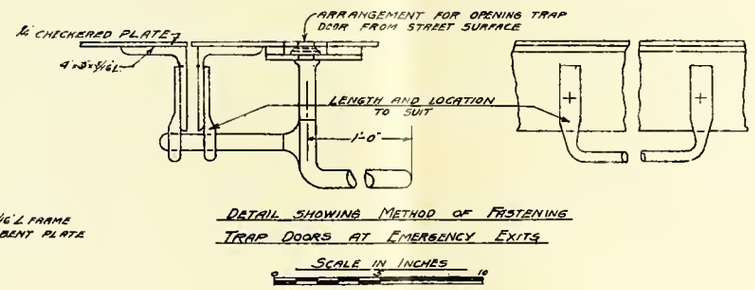

PLAN OF EMERGENCY EXIT




HINGE DETAILS

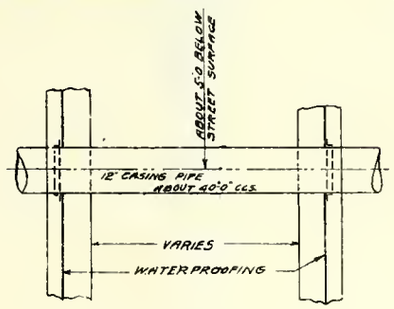



SECTION PP



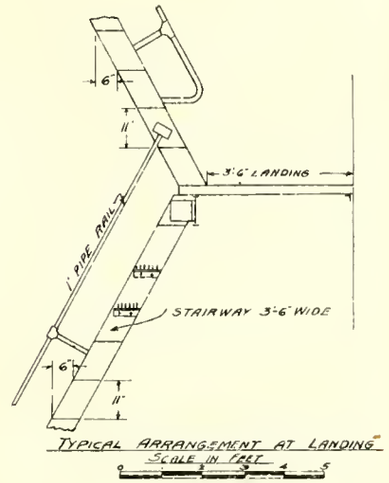

DETAIL SHOWING METHOD OF FASTENING TRAP DOORS AT EMERGENCY EXITS

SCALE IN INCHES 0 5 10

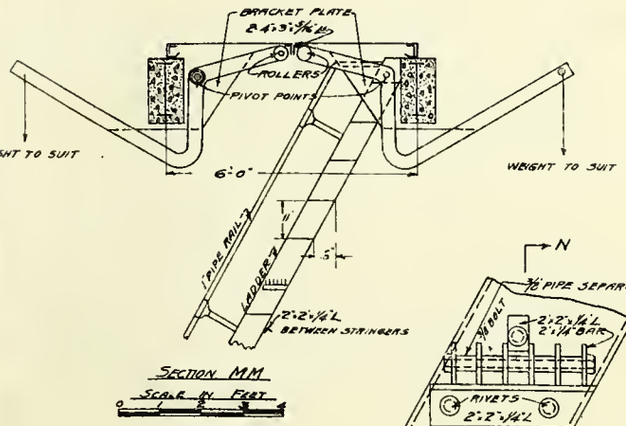



DETAIL OF CASING PIPES
ACROSS GRATING OR VAULT LIGHT SPACE

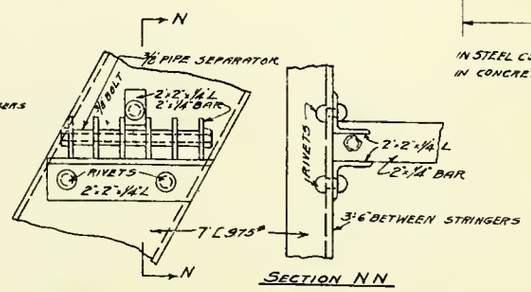
SCALE IN FEET 0 1 2 3 4




TYPICAL ARRANGEMENT AT LANDING
SCALE IN FEET 0 1 2 3 4 5

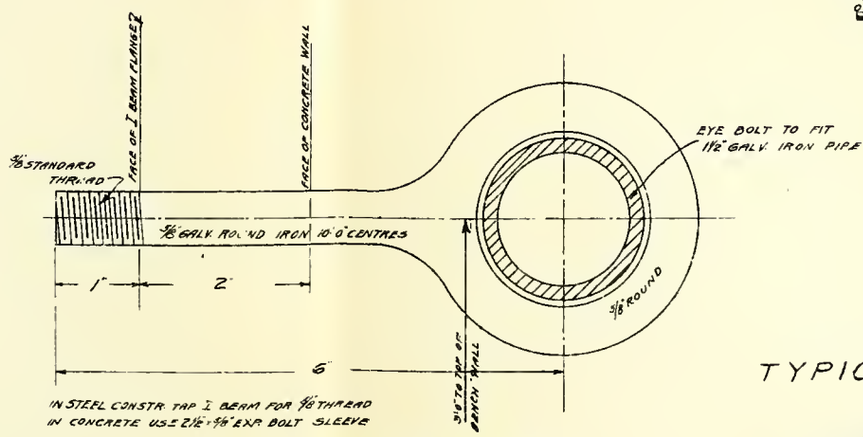



SECTION MM
SCALE IN FEET




DETAIL OF TREAD

SECTION NN




IN STEEL CONSTR. TAP I. BEAM FOR ⅜" THREAD
IN CONCRETE USE 2½" x ⅜" EXP. BOLT SLEEVE

DETAIL FOR HAND RAIL OVER DUCT BENCH

# TYPICAL DETAILS.

CONTRACT DRAWING NO. C-1001

DATE: APRIL 16, 1913.

Alfred Craven
CHIEF ENGINEER

64468

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